ROD & Custom

January, 1956 25c

Building The MERCEDEUCE

Page 11

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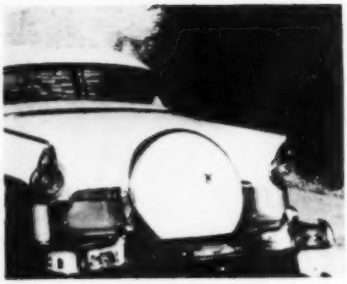

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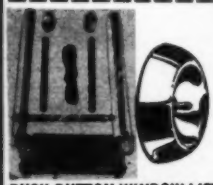

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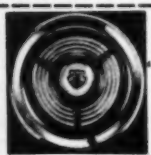

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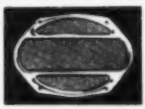

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ROD & Custom

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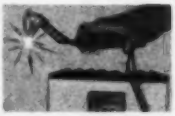

SPECIAL REPORTS

RODS AND CUSTOMS

REGULAR DEPARTMENTS

ABOUT THE COVER

Artist Joe Henning, at the request of many readers of our June issue, has completed the design of the Mercedeuce. Shown in full color on our cover, a complete rundown of the car, including how to build it, begins on page 11. Next issue will sum up the 2-part series.

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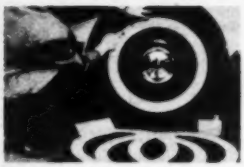
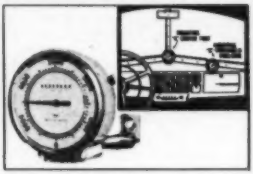
New Products MAIL MART



DOLL-UP TIME! Change black tires to whitewalls or color in *minutes*, this *easy, inexpensive way!* Super strength bonding permanently welds pure latex circles to tire walls. Complete with application kit. White sidewalls, set of 4, $9.95; set of 5, $11.95. Add $2.00 per set for colorwalls in pink, yellow, blue or green. Specify wheel size and color. Item 1.



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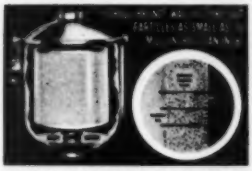
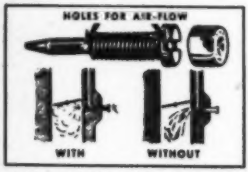
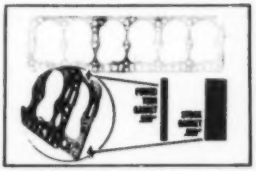


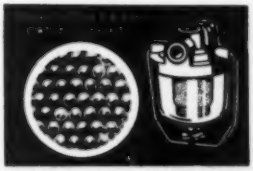
IMPROVED-LIFETIME ELEMENT fits *all* oil filters! Protects engine—saves money. Ends replacement costs *forever. Strongest, largest,* most *efficient* built . . . avoid cheap, thin-walled imitations. 10 Year Guarantee. Acid Neutralizer included. "By-Pass" model, $6.95. Complete Filter (with housing), $12.95. "Full-Flow" $11.95. Item 3. Ppd.



GET TWO MORE MPG! Gene Air-Jet Needle replaces stock idling screw, feeds engine proper gas-air mixture. Smoother idle! Stops "overloading" with raw gas, carbon build-up. The *only* needle with filter cap to keep dirt out. Install in 3 minutes. Specify make carburetor (2 needed for dual throat). $1.50 each. Item 4. Ppd.



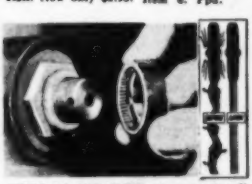
'55 POWER FOR YOUR OLDER CAR! "Power-Thin" Gasket (as used on many '55s) gives *surging* power, gas economy! Equals milling head approx. .060". Boosts compression up to 17%! Guaranteed Blow-Out proof. Install it yourself . . . fits perfectly. Avail. for all cars. Solid Copper, $6.75. Solid Aluminum, $3.95. (V-8 pairs, same price.) Item 5. Ppd.



POROUS BRONZE GASOLINE FILTER prevents "gumming-up." *Keeps* carburetor *perfectly* tuned! Porous bronze element "screens-out" all gums, tars, moisture from gasoline, prevents fouling. Better vaporization . . . enjoy extra mileage, power and pickup. No moving parts, lasts forever. Fits all cars—easy to install. Now only $2.95. Item 6. Ppd.

HANDY TO HAVE! 10-piece socket set containing most wanted auto and shop tools. Eight sockets, from 9/16" to 7/16" by 32's, plus ball-grip flex handle and extension. The size you need when you *need it!* Carry in your car for any emergency . . . comes in sturdy carrying case. Complete 10-piece tool set, amazing bargain at only $1.95. Item 7. Ppd.

WHAT ARE YOUR CHANCES of living through a smash-up? Get protection with Approved Safety Belts . . . they may save your life . . . don't trust cheap unapproved types. Ours test 3000 lbs.—strong polished buckle, glossy H. D. nylon webbing. Comfortable, adjustable. Install them yourself . . . easy! Blue, maroon, grey, green. $8.95. Item 8. Ppd.



TIRES GO STRAIGHT when you install Micro-Lok Spindle Nuts! 62-Point Micrometric head holds front wheels in 10 times more precise alignment. Stops "Snaketracking," assures safe, controlled steering. Tires last 5,000 miles longer—saves bearings, brakes! Easy to install. Insist on Micro-Lok — safe — hardened steel. $2.95 per car. Item 9. Ppd.

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EDITORIALLY SPEAKING

IT IS always with a certain awe, even reverence, that we listen to tales of the Mercedes and Auto Union racing victories during the Grand Prix era between 1934 and 1939. Like as not, most of these stories have been greatly exaggerated having been passed along by word of mouth for the intervening years. However, suffice it to say that these racing teams have been recognized as having built the finest racing cars that the world has ever seen — and it is unlikely that such specimens of automotive perfection will ever roll again.

What has all of this to do with us? Plenty. Though the factories and teams of men responsible for these cars were tremendously secretive about their work, enough knowledge of construction methods have been made available so let's take a brief look.

International racing's governing body set down, in 1933, a "formula" for Grand Prix auto racing designed to keep all contestants within the same general class as far as car weight and physical size were concerned. This was to keep cars capable of producing literally hundreds of horsepower from competing against smaller cars. As it worked out, the formula set down certain body and chassis limitations (much as classes are determined today at drag racing or for a Bonneville meet) and, oddly enough, a maximum car weight which could not be exceeded. Engine size was not considered of great importance since the officials thought that by limiting car weight, the engine size would be pretty well limited. In order to produce horsepower, engine weight must be sufficient to withstand the strain. Increase the hp output, and total weight of the block and accessories should be increased proportionately. It was felt, then, that with a maximum weight limit, speed would be maintained at around 150 mph.

Here's where the rub came in. The several makes of cars which competed in the Grand Prix events were designed and built by metallurgists, aerodynamiscists, engineers and chemists. Combining these talents with an unlimited amount of money, the cars built for the successive years had more and more horsepower. Utter and complete finality was reached with the 1937 Type C Auto Union which produced nearly 700 horsepower — the car weighing not over 1700 lbs., *less than the weight of the average street roadster of today!*

In 1938 nearly all the competing cars on both the Mercedes and Auto Union team cars produced between 480 and 600 horsepower — from engines not much larger in displacement than today's Chrysler or Cadillac V8's!

Yes, you might say, but look how the Americans have succeeded in raising acceleration records to the 150 mph mark (for the standing quarter mile) and are continuing to boost this mark. Actually, the Germans could have closely approximated this rate of acceleration in cars built twenty years ago — with the additional advantage of having these same cars being able to corner, brake and perform in general in a better fashion than we can ever imagine. I'm afraid our fastest dragsters today would have been the laughing stock of Europe back in 1938.

Grand Prix car builders recognized the drawbacks of excess weight — some cars were run unpainted since the builders felt that the weight of the paint would reduce the power/weight ratio! Where a particular course did not place the demand on brakes as did another circuit, smaller brakes were used in the weight reducing struggle, this time to better the sprung-unsprung weight ratio.

And so it goes. Even though all this and much more information is readily available to anyone seriously interested, why is it we continue producing competition cars (hot rods, if you choose) whose characteristics are just the opposite from what the Germans have proved to be ideal? Seems to us that we have a lesson to learn and it's about time we started learning it.

s.m.

LETTERS

THREE CHEERS

R & C's article on the installation of Chevy's TurboFire V8 into an older Chevrolet is by far the most complete, accurate and thorough story I've ever read on an engine installation. Let's have more like it. Can't wait for the next issue!

Tom Tildney — Astoria, L.I.

• *Neither can we.*

2 FOR PRICE OF ONE

R & C is far and away the best mag in its field! It's so loaded with interesting stories and photos of cars that it doesn't seem unreasonable to ask why you don't put out an issue *twice* a month.

G. F. Harkney — St. Louis, Mo.

R & C could improve if you fellas wanted it to. Instead of putting out an issue each month filled with only a few really *good* articles and a lot of stuff no one is interested in, why not save up the good things and put out an edition every other month. O.K.?

Bill Johansen — Chicago, Ill.

• *In view of the above letters, we're going to compromise and put out an issue once a month.*

DEUCE FAN

I was very interested in your June '55 issue containing the past, present and future of the '32 Ford. I'm a loyal fan of the '32 and suggest you have another issue based on this old, but good, Ford-built classic.

John Seligman — West L. A., Calif.

• *If you leaf through this issue you'll find a number of things that should keep all Deuce fans happy. Take, for instance, the fabulous Mercedeuce which starts a 2-issue run on page 11.*

FORD PARTS

I'm in the midst of rebuilding a '40 Ford and need the rubber moldings for the 2-piece rear window. Ford dealers around here can't supply them, do you know where I might get them?

Wayne Hendricks — Box 474, Lawrenceville, Virginia

• *No, but maybe a reader can help you.*

T

You mentioned, in your Sept. issue, something about the possibilities of using other than T roadster bodies for street machines.

Why not speak to Messrs. Henning & Ritch about the favorite old T "tub"—they look real great when converted to modern requirements. Have seen several and they beat the too-common roadster type all to pieces.

Bob Vance — Atlanta, Ga.

• *We'll speak to them when they return. Right now they're out checking to see if an Allison aircraft mill will fit in a T delivery truck.*

REO V8

I read with great interest the article in your October issue concerning the possibilities of the Reo V8 Gold Comet engine. In view of its disadvantages (great weight and size), I would suggest the use of an aircraft engine for use in an attempt to better an International record. Such an engine might be the Continental O-470-B.

This engine is an air cooled, horizontally opposed, 6 cylinder job which would permit a thin, streamlined body. The engine displaces 471 cubic inches and produces 240 hp at 2600 rpm.

With suitable modifications, this horsepower could be almost doubled at 5,000 rpm. In addition, the engine should be beefy enough to take about 15 psi of "artificial respiration". I would estimate a maximum horsepower of 900 on the blown variation.

Of course, these aircraft engines are expensive.

Roger Gordon — New York City, N.Y.

• *Yes, very expensive—and replacement parts are hard to come by. By comparison, parts for the Reo V8 are available as easily as they are for any modern engine and they are no more expensive than any comparable V8. The Reo is heavy, true, but weight affects top speed runs very little. As a matter of fact, at 1110 lbs., it's only about 30 lbs. heavier than a Chrysler. (However, this Chrysler weight includes the heavy automatic transmission while the Reo does not.) At any rate, the Continental would outstrip the Reo for sheer size which, as you say, would permit good streamlining.*

(cont.)

LETTERS

(continued)

THE ROADSTER

Couldn't you make a vast difference in the price of *The* Roadster by building a Fibreglass body instead of converting an existing body or hammering one out of aluminum?

Anonymous Lompoc, Calif.

● *Probably. From what we've been able to learn from various fibreglass body builders in this area, the cost would jump to $2.00 a pound instead of the $1.00 as planned. However, it just may be that someone may soon offer various portions of the body as designed by Joe Henning (for instance, the grille shell, tail section, etc.) if there are enough calls for them. How about it — anyone interested?*

Help!

Magazine readers have a habit of skipping an issue or two of their favorite publication, then ordering later when they realize they've missed something in which they're interested. Such is the case with many of R & C's readers who happen upon, say, Part II of an article then learn that they do not have Part I.

At present our back issue department is busy taking stock of what's available in the way of past editions and this information will be passed along in the near future so readers interested in keeping their files up to date may do so. However, it has recently become painfully apparent that one of our office copies has disappeared and cannot be replaced since our backlog of this edition is totally depleted. In order that we may have a complete selection of our previous editions, we are appealing to readers who may have duplicate copies of the missing issue. If you have, or know someone who has, an extra copy of the August 1953 issue, please contact us at 5959 Hollywood Blvd., Los Angeles 28, Calif. Don't send the copies right away, just drop us a card stating the condition of the copy (or copies) and we will answer by return mail. The readers whose offered copy is accepted will be rewarded with a two years' subscription to R & C. Fair enough?

(cont. page 59)

Mercy, its the Mercedeuce

For those readers whose experience with Rod & Custom does not date back to last June, we did a little piece called, "How To Recognize The '32 Ford In Its Native Habitat", as part of an issue devoted to the past, present and future of the wonderful 1932 Henrybuilt. As the example of the "future" for the marque and year we concocted a "Mercedeuce" (from Mercedes 300 SL and "Deuce" . . . slang for '32 Ford), offering something different for the enthusiast to think about. The outgrowth of this proposed variant has been as surprising to us as the success of THE Roadster and for these hardy souls who would like to explore the possibilities further, or for the younger fry who build models while saving up for the real thing, we present a treatise on the why and how of the Mercedeuce. So, bear up. It will take two months to get this out of our system . . . And to avoid the crush at the newsstand, why not send in a subscription to ROD & CUSTOM today.

BUILDING A DUAL PURPOSE SEDAN

Part I.

By Henning and Ritch

With a world-wide shortage of usable '32 Ford roadster and coupe bodies, Henning & Ritch reveal the inherent possibilities of the 4-door.

Recipe: Take one 1932 Ford and disassemble it completely.

Having got this far, you can take a breather while we discuss what comes next. The stock 106" wheelbase is just about right for a personal car or light sedan, so our main problems will be of weight distribution and center of gravity location. Suspension, too, must be tackled and a decision made on the type of performance we expect from the finished product... the condition of our bank balance will play a large part in helping us come to these conclusions, no doubt, so let us consider the Mercedeuce from two aspects... the limited and the unlimited categories.

In the former department, we will make-do wherever possible, in the latter, let's go hog wild and get the things which would be stock equipment on a dream car.

In our original article on this go-toy, we mentioned the dropped front axle combined with near-stock springing. This will suffice for the restricted purse, and a short, how-to-get-it-done will follow after a few hundred well-chosen words on, "Gee, wouldn't it be great if..."

Back in May, R & C featured the Denny Larson creation... a reworked Sorrell fiberglass-bodied coupe which turns on something fantastic under impetus of a big Chrysler mill. The front suspension of this car sort of fascinated us, and we can see the possibilities. MG TD spiral springs are used in conjunction with a stock Model A beam axle. Pads are welded onto the axle and sockets jut out from the tubular frame to receive the top of the spring. Denny says that the spring rate is wrong and that they are too stiff, but on the heavier, longer Mercedeuce we feel that they might be just the ticket.

The front end is no snap. Denny had to solve the problem of side-sway and keeping it in line...which he did nobly, but he was helped by the fact that a deep-truss tubing frame was being used. To adapt this to the Mercedeuce will mean building up a mount from the box frame and will pose a weight problem. However, the gain in spring control will surely offset the weight increase... and unsprung weight shouldn't suffer.

Reference to accompanying photos and drawings will point up these problems as well as illustrate the advantages. Controlling a flexible leaf spring with a shock absorber is not the same as snubbing a spiral type so if softness of ride is any part of the consideration (and the Mercedeuce should certainly be comfortable as a street machine), we'll use tubular adjustable shocks with them.

With the A-Bone axle, frame-mounted sway braces should be used. This can be fashioned from abandoned wishbones, per hot rod practice, and attached with adjustable tie-rod ends for alignment purposes. A side-thrust brace, running from a point at the bottom of the right spring mount to the left side of the axle inboard from the spring perch can be made out of a draglink. The ball ends make good connectors.

A dago tube axle, as supplied by Bell Auto Parts, and using the early 10-leaf transverse spring will go into our limited-finance type car. We favor the suicide front mount of the roadsters. Doing away with the stock cross-members and welding up a new box type from sheet stock. In doing it this way, we can weld in about 8" in the side rails which, with the added length of the perch itself, will gain roughly 10" in moving the axle forward. This changes the relationship of the front axle to the center of gravity considerably, and when we gather in the rear by as much, great improvements in weight distribution will have been wrought.

Suggested frame layout in drawing (right) shows how boxed channel side rails with tubular body formers combine to produce a well integrated, sturdy structure which forms backbone of car.

In an unlimited, sky's-the-limit arrangement, we would certainly hold out for full torsion bar suspension, building A-Frames like the Mercedes and running the bars in the chassis frame. But, in the poor man's model with either the dagoed stock axle or the tubular dropped type, we rely on the old standby Ford Houdaille shocks to assist the 10-leaf spring. Incidentally, these shocks can be made double acting without going all the way to 50-50, best suited to competition cars. Any ratio, such as 70-30 (jounce to rebound) can be specified when having the single action stockers reworked. The man that specializes in such activities, and admittedly the world's leading expert, is Al Swanson at 1526 Ivar, Hollywood, California. His recommendations for a fairly solid ride on a street type high performance machine run to the use of the 70-30 setting.

The other alterations to the frame should probably be taken up at this point, although there is so much leeway possible that anything you do would be right if it is handled in a workmanlike manner. Just as in *The* Roadster, all we can do is recommend . . . because each builder has his own ideas and his own set of special abilities. A good welder, for instance, would prefer to run a seam at each joint where another mechanic would use a bolted assembly, so, these essays should serve only to stimulate your thinking and to offer incentive to use your ingenuity to improve on the methods even.

The frame center must be removed, of course, and replace with an X which can be made from "A" side rails. Our plot calls for a center-member-firewall combo hacked out of aluminum so the stock transmission support is valueless. To add strength to the rear section which will take the torque from a big mill we devise the X. This is being predicated on being able to install some sort of swing-axle rear end, preferably with a limited-slip differential. If the conventional drive line and rear axle is used we would merely change the kick-up.

In order to move the rear axle up 10 inches, chop the frame off at a point about where the rear runningboard brace used to be and weld on new kick-ups, as detailed in

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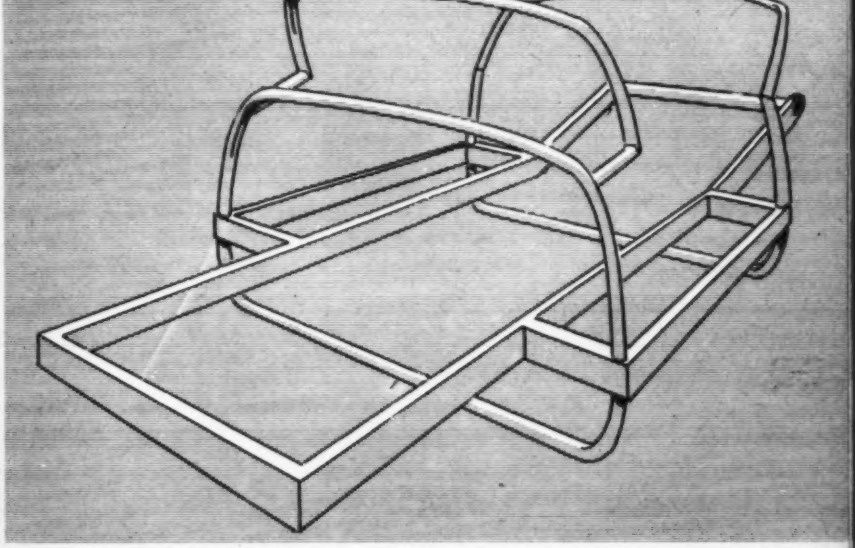


the drawings. This sharply angled rise enables us to place the rear seats low enough for people who are tall in the saddle... and allows the use of a spring perch behind the axle. This perch is after hot rod practice featuring a welded steel overhang coming off 3½" tubing for a rear crossmember. Reversing the spring hangers is a matter of switching the axle housings, left for right, and then rotating them. Arch of the '31 "A" spring is just right to clear everything nicely and the lower hangers help reduce the c/g considerably.

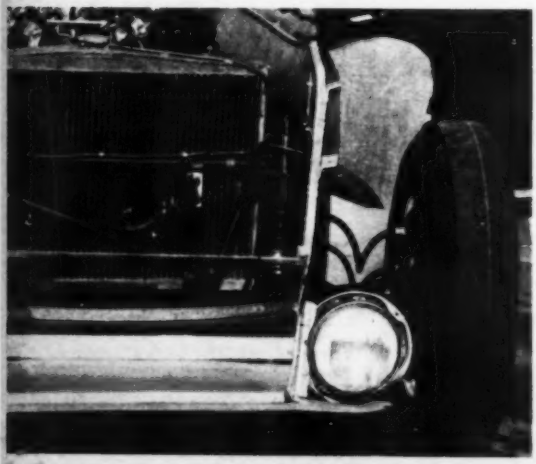
Back to that centermember: The lower portion should be of ⅜" aluminum running the width of the frame and deep enough to take the bolt circle on the bellhousing of the engine of your choice. This plate will be between the bellhousing and the transmission and serve as a support in place of the stock mounts. An angle bracked of ⅛" sheet stock brought in to the plate from the frame will add rigidity.

Rising from the engine plate will be the firewall which can be bolted to the plate and attached to the under-cowl roll bar which forms the main body member. Light aluminum will suffice if provision is made for clutch and brake pedal brackets to hang from the steering column. If a HydraMatic transmission is used, only the brake will be needed, natch, and it is suggested that it be placed so that left-foot operation is possible. If an early transmission is used in conjunction with either a flathead or a big mill, retain the floor shift, by all means. Shorten the shift lever, but keep it on the floor AND install a hydraulically actuated clutch. Parts from the '54 Ford work fine, and the extra cost is worth the difference in pedal action.

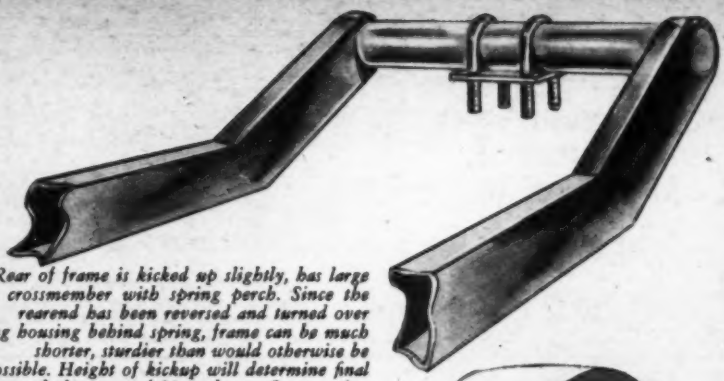
A number of articles have appeared on the subject of LaSalle transmissions for Chevys, GMC's, and the like, so we won't go into this phase of the subject. However, linkage to convert either floor shift to column, or vice-a-versa, is real simple, so don't let anything stand in your way. Our reasoning behind the floor shift in this case is that the two bucket seats make it handy... plus having driven a sports car for so long that it just comes naturally.

The front engine mounts will naturally depend on the engine used to power the Mercedeuce, but they will be set rather far back from the front axle as compared to the production car. Duplicating the stock mounts of the engine as closely as possible is advised, but in the case of something like the Plymouth V8 where a second cross member would have to be fabricated it is better to weld up an extension for the "V" and cushion it with sheet rubber at the frame. Buick V8's sit neatly on old Ford "60" mounts which can be torched off defunct chassis at wrecking yards... cheap, too.

Steering is always interesting because it is a simple subject with complexities. The simple part is that every car has a steering system, so it's no trouble to find one to attach to our now pretty altered frame. *But*, like



Front suspension of Denny Larsen's competition car (R & C for May '55) would be ideal on the Mercedeuce. MG coil springs secured to pads welded to a Model A axle set in sockets built into the truss frame. Sidesway was eliminated by stabilizer bar which can be seen just in front of radiator. Roadster-type radius rods provide fore and aft placement of the axle plus proper alignment.



Rear of frame is kicked up slightly, has large tube crossmember with spring perch. Since the rearend has been reversed and turned over putting housing behind spring, frame can be much shorter, sturdier than would otherwise be possible. Height of kickup will determine final ground clearance of Mercedeuce. Construction of this type would be in the "dream car" category since a special frame is used, however Mercedeuce can be built on stock '32 Ford rails.

Suggested rearend treatment is to reverse the axle housings on the centersection, then rotate them half-around. This places the spring ahead of the housings which means a shorter frame, simplicity of mounting. As seen from the front in drawing, scoop draws air into brake assembly should car be used for competitive purposes. Note shock mount near wheel.

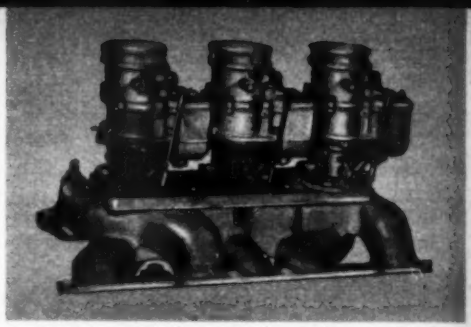
we always say, if you want to stay off your knob, do it right! Doing it right in this case is making sure that we have a fairly fast ratio coupled with a strong draglink and good tie rod. A late column is probably the choice of most because of the desire to fit a new wheel but this will give us a slow box. This remedy is to attach the '37 Chevy *Standard* (not Knee Action), pitman arm to the Ford gearbox. The splines match and all you have to do is knock out the ball and press in the Ford fitting to receive the drag link.

Don't weld any steering components if you can possibly get away without it. If you need a longer link, get a longer one. Don't glue two together. These parts are so cheap that it's better than wasting the gas . . . and risking your neck.

This gets us pretty far along on the Mercedeuce. The chassis is solid as a rock, we've mentally selected an engine (Surprise!), allowed for the peculiarities of its installation (mounts, position of generator, starter, etc.), got our steering set up (taking care to clear the engine, headers and sway braces, of course), adapted the rear spring perch to our needs, beefed up the frame at point "X" and figured up a center cross member and firewall. Pretty good for a night's work, hey?

Join us next month and help put the brakes on, the engine in, and fashion that body. ●

The pre-'54 DeSoto V8 is a fertile field for the hop up artist. Light and rugged, it can be made to scream like its big brother.



Special manifold was made up from a Weiand dual four-throat unit. Flat adaptor, under carburetors, was trimmed to fit, holes bored to align with throats of 3 new two-throat carburetors.

MORE *FIRE* FOR THE

IT SEEMS strange to us that some of the most interesting engines are the least used for conversion purposes. Though to some extent based on availability and cost, this oversight is in some cases due purely to lack of information.

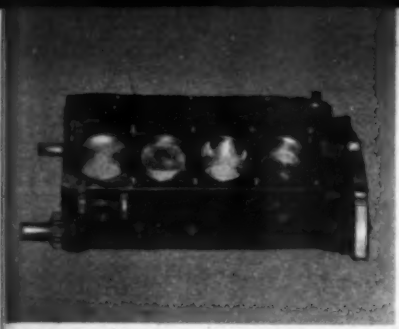
A case in point is the Chrysler Corporation's medium-sized bear, the DeSoto V8. Here is an engine that would seem almost ideal for both hot road machinery and competition. Weighing in at 625 lbs., the engine pumps 160 to 170 bhp stock and can put out as much as 310 bhp without any increase in size. An eighth-inch bore job will bring it up to 298 cubic inches and allow around 320 horsepower or more on straight alcohol. Depending on the severity of the cam grind the engine can be buzzed as high as 8000 rpm without coming unglued.

ROD & CUSTOM has always had a policy of checking into situations like this. Accordingly we dropped in on Ray Brown, the acknowledged leader in the field of Chrysler equipment. As it happened, Ray was right in the middle of just the conversion we wanted — a DeSoto powerplant destined for a drag coupe owned by Harry Stevenson of Chicago, Ill. For his purpose, it seemed an ideal choice. Weighing a good 125 lbs. less than its "big brother" the Chrysler, it could churn up almost as many horses. Even more important, the cost was far less.

The engine used was a '53 model which started life with 276 cubic inches and a modest 160 horsepower. After stripping the engine down in a total disassembly the block was bored ⅛ of an inch oversize to 3.75 inches on each cylinder to give a total of 298 cubic inches.

The crank, found to be in good shape, was left alone except for micro-finishing and a complete static and dynamic balancing with the new piston assemblies. Ray feels that the only really ideal way to gain added compression in the hemispherical combustion chamber design is through the use of compression raiser pistons rather than by milling which would tend to limit valve size increases. Consequently the DeSoto was equipped with a set of Sanfordized J.E. pistons domed to give a CR of 11 to 1, a reasonable ratio in light of the fact that the engine is destined for a diet of alcohol. To thrive on an alcoholic life it needed the tight squeeze. The rods were shot peened and polished. Piston skirt to wall clearance was .012 of an inch.

Nothing more needed to be done to the block itself except for the installation of a set of roller tappets and a Herbert 280-degree, low lift cam. The low lift of .375 of an inch at the valve was needed in order to keep the valves from fighting with the pistons. Making up for this is an extremely rapid valve acceleration or opening and closing rate coupled



FireDome block is generally similar in layout to larger Chrysler, smaller Dodge. Complete mill weighs 625 lbs., pumps 160 to 170 hp. in stock form, can be boosted to 310 figure.

FIREDOME

By John Christy

Photos by Spence

with the 280° duration. Characteristics of the cam are as follows: Intake valve opens at 30 degrees BTDC and closes 70 degrees ABDC; the exhausts open 70 degrees before bottom dead center and close 30 degrees after top dead center. Lift on both intake and exhaust valves is the same.

Ray had a word of caution to those contemplating the use of roller tappets and other special lifters with Chrysler products. Before purchasing the engine a prospective buyer should first check the engine number. A diamond insignia in conjunction with the number indicates that the tappet bores have been increased by .008 of an inch. Such a condition would rule out the use of special lifters without serious and expensive machine work.

Next came the heads. As pointed out earlier, these were not shaved or milled. Checked for warpage and combustion chamber displacement they were left alone as far as the gasket surface was concerned. Valve throats were enlarged with a piloted reamer and finished with a piloted stone to take the '51 to '53 Chrysler valves, both intake and exhaust. These have a diameter of $1\frac{13}{16}$ for the intakes and $1\frac{1}{2}$ for the exhausts as against the original sizes of 1.75 inches and 1.407 for intakes and exhausts respectively. The intake valve seats were narrowed to .020 and the

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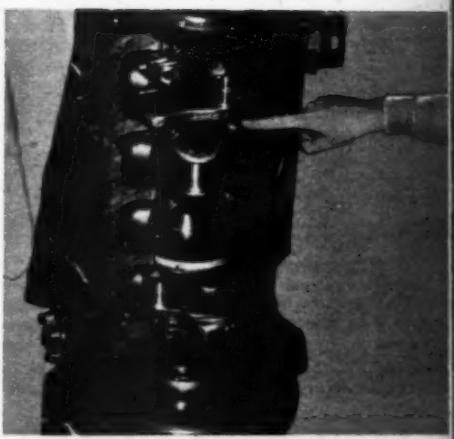
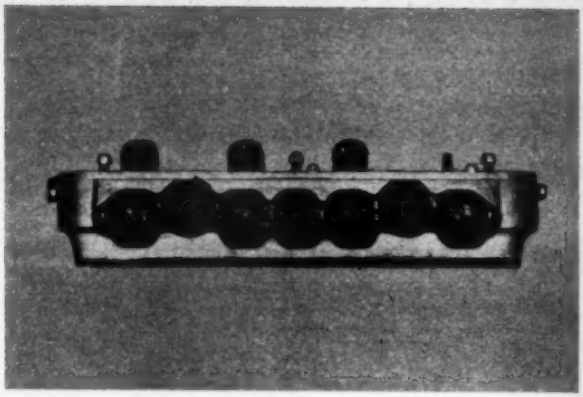
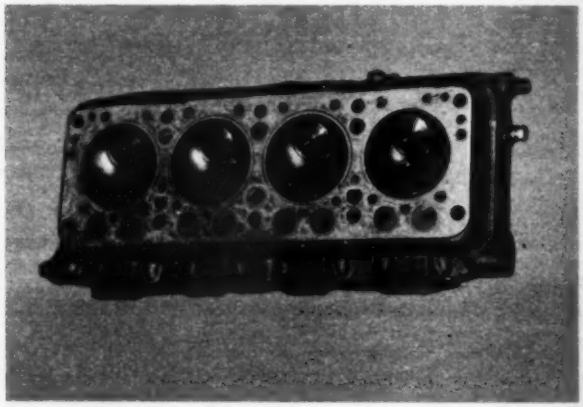


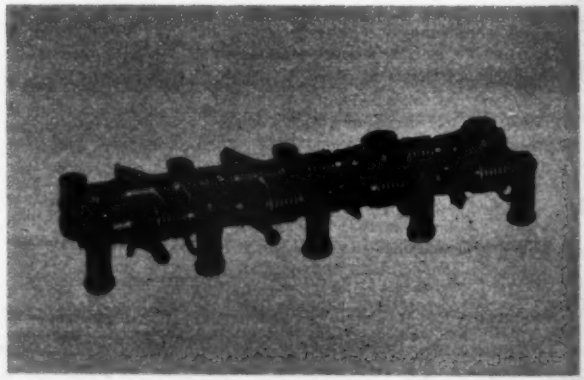
Heavy steel main bearing caps are advisable for engine built for competitive use. Extra price could save a huge repair bill later on. Here, all but rear cap have been replaced.



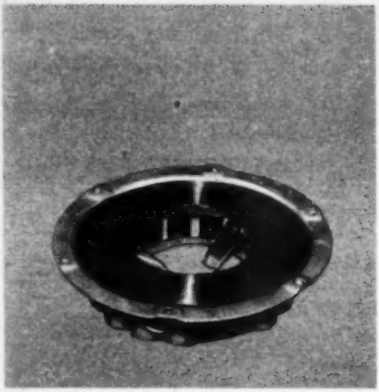
Intake ports (rectangular) have been cleaned *out, but not* hogged *out. 1/32" was taken from each side of each port, thus shape of the ports is same as stock, but 1/16" larger across.*



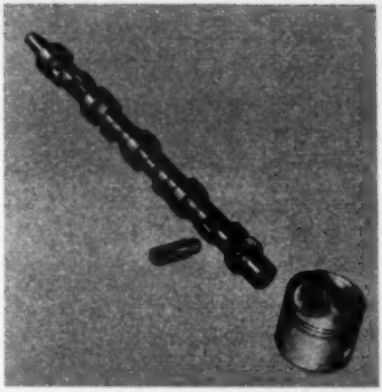
Here's where the FireDome gets its name. This particular engine uses '52 Chrysler valves which are interchangeable with stock DeSoto's after porting operation outlined in the text.



Rocker shafts are equipped with special R.B. springs to prevent rocker float, allowing the engine to rev as high as 8000 rpm. Rockers are upside down in photo since spring pressure prevents pivoting them around unless stands are securely bolted to the head. Two rockers in left foreground rest in normal operating position. Spring tension exceeds 100 pounds.



The clutch used in this engine is a Friction-Master model with steel ring (not discernible in photo) around outer circumference to prevent disintegration at extremely high rpm's.



Use of special piston is recommended for compression increase rather than milling of head. The cam is a special 280° Herbert Roller type shown with one of Herbert's roller tappets.

exhaust valves were left with a .040-inch width and both were given standard 45° seat angles.

For springs, Herbert inner coils were used in conjunction with Olds outer springs. All spring seats were spot faced with a 1½-inch hole saw before the springs were installed. Exhaust-type retainers were used throughout to avoid any chance of conflict with the upper ends of the valve guides. Since adjustable rockers are not available for the DeSoto, at least from the factory as is the case with the Chrysler, adjustable push rods were used. Exhaust rockers were shot-peened for strength.

The valve pockets were cleaned up and polished. Exhaust guide bosses were ground but the guides themselves were left alone. In cleaning up the inlet and outlet ports moderation was the word. These were enlarged by only 1/16 of an inch in each direction or 1/32 of an inch to a side. A word of caution was also mentioned here. When porting the intake passages care must be taken in the area adjacent to the push rod holes. The metal is thin here and though any fall-through is easily repaired the repair work is time consuming and messy.

Ray is particular about carburetion. For street use the various special manifolds are more than adequate, he feels. Dyno tests on engines of this type and purpose, however, showed a need for something just a wee bit different. A dual manifold doesn't quite provide enough carburetion and a dual-quad or four carburetor layout has a tendency to provide too much. The remedy lies in using one of the special manifolds and milling the top off of it. A ⅜ inch plate of aluminum is then made and the whole issue is bored for three Stromberg 48 carburetors. The plate is held to the manifold by a series of countersunk Allen screws which do not interfere with the mounting of the carburetors. An easily cut Vellumoid gasket is used as a seal between the adaptor plate and the manifold body.

It was this manifold that was used on the engine in question. Three Stromberg 48s were mounted after reworking for alcohol. A standard Edelbrock alcohol kit was used for this conversion, a virtually universal procedure. Edelbrock provides these kits at a very nominal sum for both alcohol and nitromethane use with setups available for all of the commonly used carburetors.

For ignition the Scintilla Vertex magneto is used. Initial setting is six crankshaft degrees and a centrifugal advance provides an additional 28 degrees at peak speed. Although this particular engine was not given a dynamometer test, results gained from a very similar engine showed 320 brake horsepower at just a shade over 6000 rpm on straight alcohol. Needless to say that this is a very

(to page 63)

Real wire wheels mounting white sidewalls set off metallic paint job. Accessories like these are seldom tackled by [illegible] but this rare example [illegible]

This car will bring gladness to the hearts of Plymouth sedan lovers everywhere . . .

FRENCH'S FOUR-DOOR

CUSTOMIZERS, LIKE everyone else, have their peculiarities. For example, few chop and channel enthusiasts have chosen the ever-popular 4-door body style for leadin' material. Just why this is so is basis for a good argument, but Leroy French of San Francisco wanted to be different. He liked the convenience of the car's four doors, its looks and its over appeal.

Photos by Barris

Since the elder Mr. French is a Dodge-Plymouth dealer of some renown in the Bay Area, son Leroy naturally chose one of the Chrysler Corp.'s products as his starting point. Hence the '49 Plymouth custom 4-door shown here.

Larry Hoffman was chosen as the bodyman to perform the tasks Leroy had in mind, and between he and the car owner some new innovations and ideas were quickly conceived. Once the plans had been formed, the car was rolled into the shop.

Top chopping was the initial project to be undertaken. Now, as anyone will tell you who has experienced the rigors of hacking up a turret such as this, one of the most time-consuming aspects of the whole deal is realigning the doors when time has come to fit everything back together. Imagine, then, the hassle of matching up four doors! Undaunted, though, Larry worked diligently and soon had

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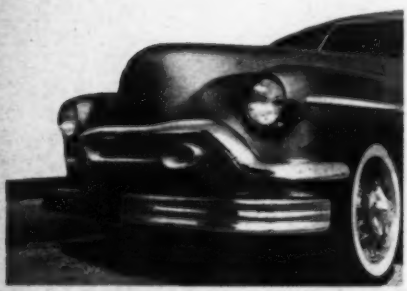
Frenched lights with slightly recessed bulb units lend length to otherwise stubby appearance of Plymouth's front fenders. Grille top bar is '49 Olds, center is '53.



Olds grille components, frenched lights and filled hood gives car sense of massiveness, width is suggested by lowering and removal of fore and aft vertical guards.

1949 Ford taillight lenses were set into the rear body panel at right angles to their normal position. Gravel deflector has been molded to body panel beneath deck lid.

everything as it had fit before. The section removed from the windshield and door-window posts amounted to some 3½ inches.

Other body modifications included the usual hole-filling and seam frenching. Deck and hood ornament holes, doorhandle holes and seams between many adjoining body panels went under the torch only to emerge as unbroken expanses of metal. In place of the conventional outer doorhandles, concealed pushbuttons have been installed which, when pressed, activate solenoids within the doors themselves. All four of them!

Rather than retain the stock Plymouth taillights, '49 Ford lense units were positioned in the body panel separating the deck from the rear fenders. The grille from an Oldsmobile was fitted to the Plymouth's nose and serves to lend added width to the car — something which the original assembly did not do.

Further refinements were the frenching of the headlights, removal of vertical bumper guards, lowering fore and aft and 4 rows of louvers punched into the hood to assist in venting the engine compartment.

With work on the body completed, the car was delivered to upholsterers Hall and Fanning who did justice to the car's interior in the form of pleated and rolled, 2-tone Naugahyde with contrasting diamond-shaped patterns in the seat backs and cushions.

Thus completed to the satisfaction of everyone concerned, French's 4-door is a rolling tribute to lovers of sedans everywhere. ●

Chopped top of 3½ inches removes a sense of boxiness in which these models abounded. The hood is louvered and covers an engine having an Edmunds manifold, Iskenderian cam, duals.

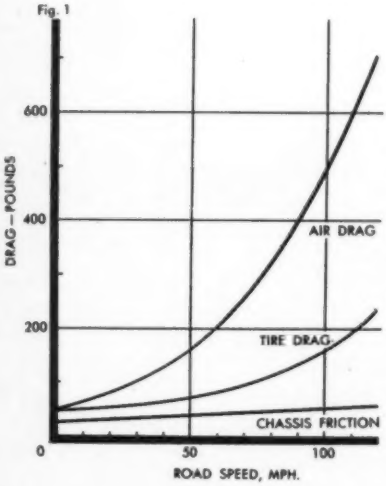
Admired by Plymouth enthusiasts is this chopped '49 4-door owned by Leroy French of San Francisco. Other alterations are a face-lifted grille, removal of

Wind resistance, rolling resistance and chassis friction fight your engine at all speeds. Here are some tips on improving performance by reducing . . .

DRAG

By Roger Huntington

Fig. 1



Graph shows how three types of drag — rolling resistance, wind resistance, and chassis friction — can add up on a typical competition hot rod. Air drag is rod's greatest enemy.

WHEN YOU mash your throttle there are three basic factors that go to work to determine whether the car is really going to *move*, or just be another "transportation machine": (1) The horsepower and torque output of the engine, which determine the forward pull; (2) the total weight of the car, which is the mass that must be accelerated; and (3) the total *drag* holding the car back.

This drag is what we want to talk about now. It's a more important factor in overall performance than you may think. From a technical standpoint, cutting drag is just as good as adding horsepower to the engine or taking weight off the car! They all let you go faster and accelerate better.

The total drag acting on a car in motion — which is a backward force that must be overcome by engine thrust — is made up of three very distinct factors: (1) Wind resistance; (2) rolling resistance of the tires; and (3) friction in the wheel bearings, axle gears, transmission, etc. (called "chassis friction"). A reduction in any one or all of these factors will improve overall performance of any car.

Let's look at each one individually . . .

WIND RESISTANCE

Think of the air as a fluid or liquid. If you've ever fallen off a surfboard at 40 mph you'll know that a fluid can act mighty solid.

And imagine the thrust it would take to push the Queen Mary at 20 knots through a sea of *molasses!* What's the connection? Only that *the very same principles apply* when pushing a car through the body of air that surrounds the earth, even though this "fluid" is much lighter and the forces are less. You have the same excess pressure on the front of the body where the air strikes it, the same friction between layers of air sliding along the sides of the body (called "skin friction"), the same reduced pressure area behind the body where the air swirls into "eddies". You can't see air – but you can't go far wrong in your streamlining if you think of it as about as thick as *vegetable soup!*

Science has learned a great deal about air drag in the last twenty years. I don't want to burden you with a lot of their technical concepts like drag coefficient, pressure gradients, Reynold's Number, etc.; but let's see what practical, bread-and-butter lessons we can learn from all their tedious and expensive research.

In the first place, the basic idea behind streamlining design is merely to cause *less disturbance* to the mass of air as the body passes through it. By far the worst part of this area of disturbance is the *suction area* behind the body; this causes a much larger proportion of the total air drag than positive pressure pressing on the front or skin friction on the sides. The suction area should get our first attention. Take a regular tire and disc wheel rolling in open air. The onrushing air will strike the nose of the tire, setting up some positive pressure, then flow around it in all directions. But when the air flow reaches the mid-point of the top of the tire, instead of flowing back inward and following the contour, it breaks away and tries to go straight back. This is because the outward momentum of the air is greater than the cohesive forces holding the layers of air molecules together. When the air flow breaks away from any body naturally there is a suction area created at this point, and this sets up violent swirls and eddies in the air mass as it tries to flow back around and fill the vacuum. This is what holds you back.

The science of streamlining attempts to fill in this suction area with body "fairing" to keep the air flow from reversing into swirls. Another possibility is to shape both the nose and tail of the body in such a way that the air will be directed smoothly around it without any sudden changes of direction; this serves both to fill the suction area and to reduce pressure drag on the front. In the case of the wheel and tire, for instance, you could put just a pointed fairing behind it to fill the suction area (Fig. 2), and cut total air drag in half. They used to do this a lot on speed record cars of 20 to 25 years ago, and you even saw a modified form of this type of fairing on the Belond streamliner at Indianapolis this year. A further refinement would be to put another rounded-nose fairing in front of the wheel to reduce nose pressure; this should reduce drag another 60% or so!

Getting down to brass tacks on modified cars... by far your worst enemies on air drag are *open wheels* and *erect windshields* (on open cars). In the case of open wheels, you're really beating your head against the wall. Even if you put elaborate fairings around the wheel and tire the terrific turbulence in the air flow as it's squeezed between body and wheel – plus having to go around the axle in the meantime – will still add a lot of drag. This has been proved in many wind tunnel tests. I recall Frank Lockhart's Stutz race car that turned 198 mph at Daytona in 1928. This car had wheels separate from the body, but carefully cowled in. It required upwards of 400 hp to do 200 mph... whereas Goldie Gardner's MG Special with "envelope" body went this fast on less than 200 hp. When all separate parts of the car are carefully streamlined, but the whole car itself has relatively high drag, we call this extra drag "interference drag", and it's caused by air flow turbulence flowing between parts.

I can't overemphasize this point. On a clean open-wheel car, like a Bonneville tank, the wheels themselves (plus their interference drag) will account for over 90% of the total air drag! And there's not a lot you can do about it. Various fairings and wheel discs don't help much (though a set of well-made fairings done by a good body man could *look* beautiful). The old classic-type "clamshell" fenders (like on the '32 Ford) help a little, but not a lot. The only real answer is the modern envelope body. I realize that open wheels are awfully nice on a roadster – being able to see your front wheels is a big help in cornering... but if you really want to go on the top end the modern full body is it. This applies to sedans and coupes as well as open roadsters.

(cont.)

Turbulence of an open wheel as it passes through air can cause drag factor equal to, say, 100.

Fairing behind wheel reduces the drag factor by one half. Here air gradually resumes its shape.

Fig. 2

Then there's that windshield. Any kind of erect windshield on an open car, even if deeply V'd and slanted back, sets up a huge suction area behind it, and can whack 10 or 15 mph off your top speed just like that. Cutting the height of the windshield helps, but the best thing you can possibly do is rip it off altogether and wear goggles! Too inconvenient? Okay . . . but you wanted to know how to go!!

And then there are a few minor "frills" in this streamlining business. I have never seen any tests on how much it helps to cover the open side of the cockpit on a roadster, but it would be bound to help some. Every ounce of drag you can eliminate helps in competition. Same deal with fairings over projecting chassis components like axles, springs, shocks, etc. An underpan will cut the air drag of the average car about 5%. This is a must for speed competition, too. On the other hand, these little detail refinements won't help enough at usual road speeds below 110 mph to bother with. Imagine a guy stripping door handles off his car to cut air drag and then running open wheels!

And then there's one other item – "frontal area". This is the maximum cross-sectional area of the complete car as viewed from the front, and it has a great influence on the size of the suction area behind the car. A street roadster might have 18 sq. ft. frontal area, compared to nearly 30 for a big Cadillac. Reducing this area can reduce air drag. Fortunately these tricks we do to lower a car – like chopping, channeling, and sectioning – also serve to reduce frontal section, and reduce drag. More power to you on this stuff. But just don't try stripping *fenders* to reduce it; this would only *increase* air drag, even though the area would be less. Remember, the cleanest car in the world, the Railton-Mobil Special that holds the land speed record (394 mph), has as much frontal area as a large Cadillac!

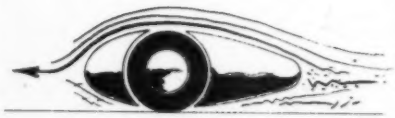
ROLLING RESISTANCE

When a tire rolls along under load there is a certain amount of *flexing* in the casing at the point of road contact where the load is supported. Since a tire casing is far from being a perfectly elastic body, this flexing *generates heat and consumes power*. You may not have realized it, but *1/4th* of the total horsepower required to pull your car at top speed is consumed by the tires! And this power loss shoots up very rapidly with speed. A standard passenger car tire with normal load and inflation pressure, if driven continuously at 100 mph, would fail inside of *50 miles* from heat build-up!

Now obviously, anything we can do to reduce the flexing of the casings will reduce rolling drag. Outside of reducing the weight of the car, which is not usually possible, there are two main possibilities – increase inflation pressure and/or use a larger tire designed for a higher rated load. Both these tricks will help, though the pressure business is by far the most effective. Raising tire pressure from, say, 30 lbs./sq. in. to 50 lbs. will increase top speed of the average modified car 5 mph! (Fig. 3 shows some power consumption curves.) That's a lot of soup to get free at the corner filling station. High pressures also generally help high-speed handling and cornering. Try it sometime.

Big tires are another good idea. Just because your front tires may have to carry only 500 lbs. of load each is no sign to go to 13" wheels or motorcycle skins. Larger 6.00-7.50 tire sections on 15, 16, and 17" wheels will improve cornering power and traction as well as reduce rolling resistance. You can easily go too far with this, but I always like good

Cowling ahead of wheel reduces drag to 20—80% cut in resistance over first illustration.

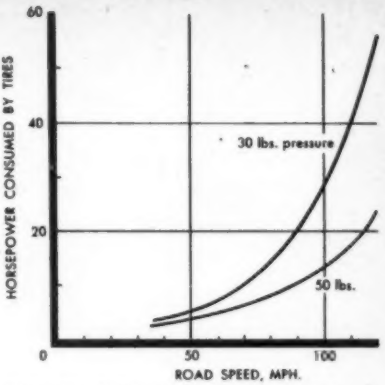


healthy-sized tires on any hot car.

Then there are the special tires for racing and sports cars. These feature a different type of casing construction, better materials, and more plies. At a given load, speed, and inflation pressure your rolling resistance with these special tires is only about *half* that with a regular passenger tire. This will pay off plenty in top speed and acceleration — and you get an added bonus of much better lateral stability for cornering, better traction, and probably longer wear. These tires should be run at 35 to 65 lbs. pressure. Right now they're still pretty expensive new, but with special tires being designed for our high-speed passengers cars (like the Chrysler 300), it won't be long before you can buy greatly-improved high-performance tires at any auto accessories store.

CHASSIS FRICTION

Every now and then at Bonneville or Daytona Beach you see some guy under his car before a run playing a blowtorch on his rear axle housing. He's warming up the lubricant to thin it out and reduce friction. This "oil drag", or the torque lost in whipping up the lubricant in transmissions and rear ends, can easily eat up 10 hp. You can't eliminate it entirely, of course, but it is often practical to use a *lighter* grade lubricant than specified — say an SAE 80 grade in place of SAE 90 — and be careful never to *over*-fill. (In fact, some guys deliberately cut the amount of lubricant.) For sprint competition like Bonneville, where runs are short, you might gain a couple of MPH by pre-heating the transmission and rear axle lubricant. Top speeds of cars in the Mexican Road Race will gradually build up 5 to 8 mph as the chassis lubricants warm up over the first two hours of running!



Even tire pressure plays an important role. Curves on graph show hp consumed by four tires at various speeds on a typical modified car. (Approximately 3000 lbs. gross weight.)

Actually, most chassis friction comes in the bearings and gears. There's not a lot we can do about this... but you can certainly keep the losses to a minimum by seeing that all bearings are maintained in good condition, lubricated with the lightest possible lube, and all bearing and gear lashes kept *adjusted*.

So there are a few basic fundamentals on car drag. I said earlier that any reduction in drag would help performance in all speed ranges. This is theoretically true — but you can knock yourself out for nothing. Drag is actually a very minor factor in low-speed acceleration, up to maybe 70 or 80 mph. Your power-to-weight ratio is the big factor here. Streamlining or high tire pressures won't help your 0-60 mph time hardly enough to measure on a stop-watch. We've tried it a number of times. So don't kill yourself to cut drag if you're primarily interested in low and medium-speed acceleration; spend your time cutting *weight*. On the other hand, on the faster drag cars getting up over 110 mph in the quarter mile, a little streamlining here and there can pay off if it doesn't add too much weight. Have you noticed the trend to cleaner body lines on the faster dragsters these days? And then, of course, when you're headed for Bonneville or Daytona, every ounce of drag you can cut lets you go just that much faster. Weight is of secondary importance. Taking a door handle off won't put your top up 10 mph or anything like that... but you might remember that it takes about 3 hp to pull an open headlight at 150 mph! ●

Consider the case of a faculty member and the . . .

Teacher's Pet

Photos by Spence

Here is the big, deep-breathing Chrysler ohv V8 temporarily installed in the 1950 Ford chassis during the early stages of construction. The firewall has been cut and recessed immediately behind the distributor for proper clearance and the other necessary alterations described in the text have been carried out so the engine will sit as far aft as possible for best performance. It has been wisely recommended, in switches of this nature, that the front fenders, inner panels, radiator, etc., be removed from the chassis to allow an uncluttered working area. Note that engine carries most of its accessories so proper space requirements can be planned without having to butcher later.

THE CURRENTLY popular fad of replacing one's engine with another of greater horsepower output (in stock form) has reached proportions not foreseen even a scant two years ago. What with all the late Detroit offerings, there are an almost unlimited selection of ohv V8 engines available and the wide selection of adaptor plates being marketed by speed shops from coast to coast make it possible to install nearly any engine into nearly any car. As a matter of fact, someone recently figured that there are as many as 3,000 possible combinations using recent ohv V8 and late model cars. Of course, many of the possible switches are far from practical – such as a Chevy V8 into a Cadillac, say, or a late Ford engine into a Lincoln. Thus, it may be quickly seen that the field of transplants can be narrowed somewhat when one considers only those switches which are truly practical. Since it is often just as much trouble, and just as costly, to install a small ohv V8 into a particular car as it is to install a larger mill, it is generally worthwhile to use the larger of the two engines for maximum performance. This, too, somewhat lessens the number of suitable switches that can be recommended. All things considered, there are but four engines which can be considered really ideal for use in but a handful of late model cars.

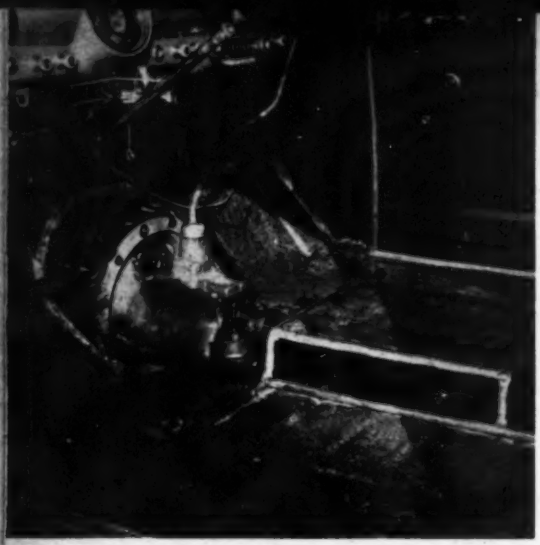
In other words, some engines are just not suitable and some cars, too, just won't take a bigger engine because of resulting poor road performance, etc. Be that as it may, however, what has been considered the most ideal of all transplants is the installation of Chrysler's big ohv FirePower in a Ford of fairly recent manufacture.

With requests literally pouring into our offices for articles and stories concerning engine switching, we started out to unearth this ideal transplant in the process of construction so that photos could be taken as the work progressed thus giving our readers the unequalled opportunity of having available illustrations disclosing the intricacies of the switch. Many of the more important steps in such a merger are completely hidden from sight when the job is completed due to fenders, braces, etc., obstructing the view. However, with the car stripped of such items, the photographic advantages are easily realized.

Fortunately, a call to friend John Geraghty

(cont.)

Engine swapper John Geraghty, whose shop is located at 4062 Verdugo Road in Eagle Rock, Calif., reworked this engine as well as uniting it with the Ford chassis. The dynomometer showed an output of 335 horsepower. Modifications include boring, careful alignment of the combustion chambers to bore size (accomplished by reaching up through cylinders and marking outline on the installed heads with a scribe) and special triple intake manifold. In this photo one of the two front mounts may be seen, which is the front pad from a '37 Cadillac sandwiched between a mounting block and perch welded to Ford's siderails. Notice good clearance which has been maintained between the crossmember and the pulley.



Car owner Boggess asked that a floorshift transmission be installed, so Geraghty used the case from a '39 Ford. The transmission was actually installed after the engine since heights and clearances in this swap differed from usual procedure. To adapt a heavier-than-stock driveshaft to the earlier gear case, a F100 truck transmission tailshaft and rear mounting plate were adapted. Gears in box are 26 tooth Zephyrs permitting a longer wind through the gears than with stock gears. New tunnel and trans. cover plate had to be fabricated.

disclosed the fact that he was just commencing the installation of a big FirePower into a 1950 Ford 2-door. His shop at 4062 Verdugo Rd., in Eagle Rock, Calif., is widely known as *the* place to have an engine switch performed, so we hurried out there towing our trusty camera behind us.

As was noted above, the car in question was a '50 Ford 2-door soon to be fitted with a FirePower engine boasting the whopping output of 335 horses by the dyno.

Further questioning brought to light the fact that the car's owner was not the hot rodder one would expect, nor was he of the type that likes to blow off stick-shift Centurys or 88's at every stop sign. No, he was a schoolteacher who merely desired a mode of transportation a little different from that of other faculty members. One might think that such a teacher would reign over a mechanics class or a machine shop, but as it turn out, William Boggess is a drama and speech teacher at Temple City High School.

His Ford was powered by a 3⅛ x 3⅛ Merc which was anything but slow. One day, with his engine in dire need of a tuneup, Boggess dropped by Geraghty's shop and there saw the finishing touches being put on another engine installation. That did it! Arrangements were made, and a few days later the car was delivered to the shop.

The first important step in the switch was the complete removal of the Ford's front fenders, inner panels, radiator, etc., so that the Merc mill could be easily removed from its resting place. Once the outdated flathead was out of the way, the installation really began in earnest. And, to what will probably be the joy of engine swapping enthusiasts the world over, this switch was to be done *right* all the way through — not just the reasonably simple replacement of the original V8 with its distant cousin the half-hemisphered FirePower.

Engine, transmission, overdrive unit and driveshaft were removed and discarded since none of these components were to be replaced. In fact, the only unit of the original drive train to be retained was the rear end. Desiring the attributes of a really roadable car which would handle properly in accordance with the wishes of advocates of "furrin" iron, the heavy Chrysler was to be mounted as far aft as humanly possible. With some 275 pounds of deadweight separating the heavier ohv V8 from the little flathead, quite a bit of juggling would be necessary to have this added weight carried totally by the rear wheels. If this proved possible, the Ford could boast of a better proportioned fore/aft weight distribution than even its stock counterpart.

Even with the FirePower nudging the firewall the ideal balance ratio was not possible, so the temporarily installed mill was removed so that the firewall could undergo a bit of torch work. Some five inches were taken out of the partition so the engine could sit just

Now that the installation has been completed, little remains to remind the observer that a swap of this magnitude had been performed. Clues, of course, are the floorshift lever — rare in '50 Fords — and the high hump in the center of the floor. Naturally, new floormats had to be made in order that trans. hump and higher driveshaft tunnel would be adequately covered. Other than this, the car's interior and exterior appear to be entirely stock. Though owner intends to drive car in a normal manner a run through the quarter mile netted 104 mph.

that much farther back in the chassis. Though jobs of this nature generally end up with a butchered firewall, this rewelded and undersealed baffle is as neat today as it was when it rolled from the doors at Dearborn — even if it isn't the same shape.

New flooring was built around the areas occupied by the feet of front seat riders to compensate for the rearward movement of the protective bulkhead. With the engine in place again, it was discovered that the desired weight distribution was only a few pounds away from what Boggess and Geraghty considered the ideal ratio.

With the engine hanging from a chain-hoist, it was an easy task to juggle the V8 around until what appeared to be the proper clearance between it and the firewall was achieved. Careful measurement determined the exact height above ground level for both front and rear crankshaft centers. This was determined partially through steering location since the box and steering column interfered with the Chrysler's left hand rocker cover, head and exhaust manifold. It might be well to add here that the engine was not merely bolted to the existing transmission through the use of an adaptor plate (in which case the transmission would have determined the height of the engine). Here was a case of fitting the gear box in *after* the engine was installed and altering the transmission mounts as needed.

Even at a position a little higher than the same type of transplant as it might be carried out by someone else, the Ford's tie rod still hit the lower portion of the V8's pan. Some engine swapping fans prefer to cut the pan to allow for passage of the tie rod, but Geraghty prefers to sidetrack this method and alter the tie rod instead. In this case a special rod was made which dips 2 inches downward than had its original counterpart, then goes back up on the other side thus giving plenty of clearance between it and the oil pan.

Location of the forward engine mounts was carefully determined and perches made of sheet steel and welded to the frame rails. Driveshaft and U-joint alignment is a critical thing so care was taken that a line extended between front and rear crankshaft centers would match up with the differential pinion bearing. A pair of '37 Cadillac front mounting doughnuts were revamped slightly to match the FirePower's mounting holes, then the front of the engine was permanently bolted home.

Desiring a floor shift gearbox instead of the columnshift (and to eliminate the need of juggling with shift levers as is usually the case in such a switch), Geraghty dug up a '39 Ford transmission which was mounted to the engine via an adaptor plate. Substituting a later model truck tailshaft in the gear box, the distance between the transmission and the original rear end was spanned with the driveshaft from a Ford F100 truck. This unit is

(cont.)

great bend

NATIONAL CHAMPIONSHIP DRAGS

photos • HERBERT / MOON / NEHAMKIN

Bustlebomb's Olds and Cad mills provide punch for run of 151 mph, meet's fastest time.

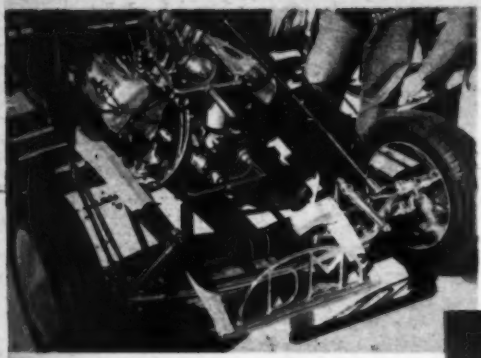
Calvin Rice spins clockward on 8,000 ft. long Kansas strip as shutterhounds have field day.

HOT RODDERS from all over the U.S.A. streamed into the Middle-Western town of Great Bend, Kansas, for the First Annual National Championship Drags. Sponsored by the National Hot Rod Association, in cooperation with the Socony Mobil Oil Company, the meet was scheduled to run from September 29 through October 2. An untimely rainstorm was responsible for foreshortening the event by one day, however.

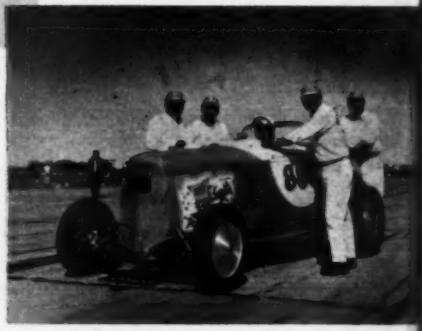
Interest in the meet was evidenced by some of the world's largest corporations. Aside from the invaluable cooperation of the producers and distributors of Mobilgas and Mobiloil, there were delegations representing the outstanding automobile, auto parts, and accessory manufacturers.

Chrysler Corporation participated in the meet through the awarding of new engines to the hot rodders turning in the fastest times with cars powered with the corresponding make. One each Plymouth, DeSoto, Dodge, and Chrysler engine was awarded. Chevrolet, Mercury and Nash were represented in the same manner, with the eyes of the entire automotive world waiting to see what the lucky rodders who went home with these engines will do to boost their performance.

From a technical standpoint, the meet revealed one startling fact: if there are any leaders in the sport, as there always must be, they are not confined to any one specific geographical area. Although the cars from California *did* get the majority of winners' positions, both in eliminations, and in the one-way record runs, the entrants from all the states had their share of outstanding well-constructed cars. Since the final eliminations to determine the National Champion were prevented by rain, the final run-offs will give the non-California entries an additional chance to show their mettle. November 19 and 20 will be the date, with the National Hot Rod Association Southwest Regional Championship Drags at Phoenix, Arizona, being the occasion. Since the 8 cars left from the Great Bend eliminations were either from Texas or California, Arizona was selected by mutual consent of the remaining contestants. May the best man win; whoever he may be, wherever he's from, he's sure to be a *true* hot rodder! ●



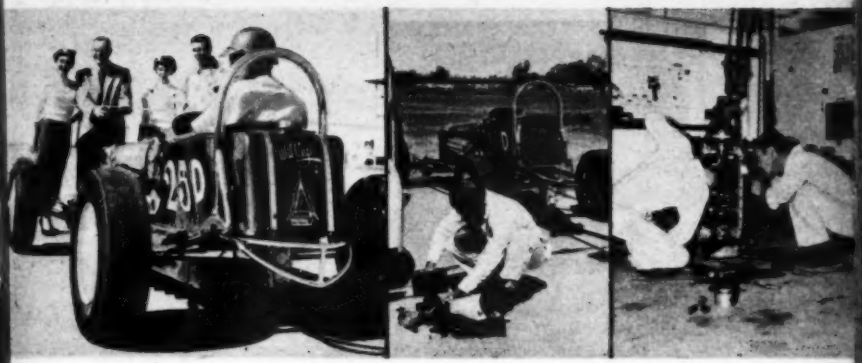
Dave Marquez' '32 B Hot Roadster was tops in class, also assuming honors as best appearing car. Body is secured by four wing-nuts for quickie removals and replacing. Ardun-Ford mill has fuel injection. Santa Paula, Calif., machine is hued with special orange paint from a guided missile!



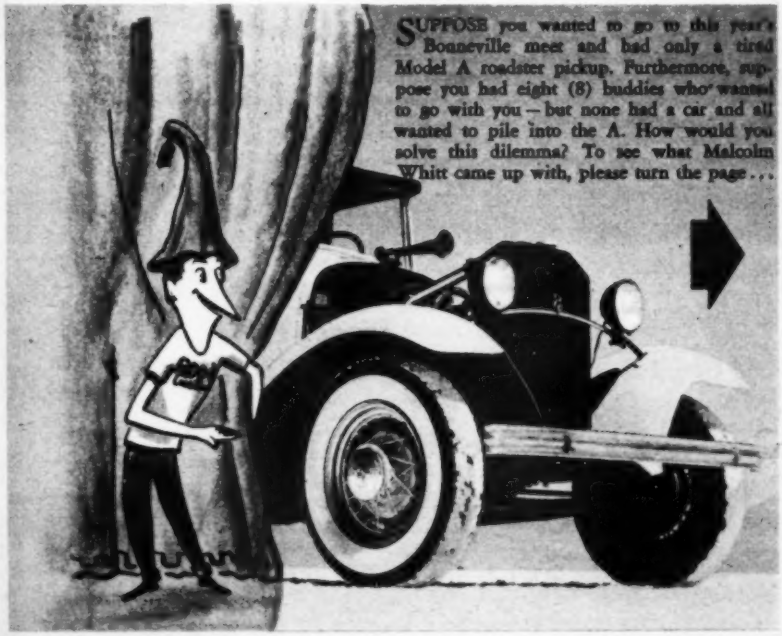
(Left) Extra engines were brought by many crews — with good reason. Engine casualty list was staggering.

(Below) Chevy-8 turned 99, was class victor.

Chopsticks' Ardun lays thick smoke screen to thoroughly baffle the mob.



Chrisman Garage dragster prepares for first run of meet as Mayor of Great Bend snips tape to begin festivities. Later, Lloyd peers into depths of strangled gearbox and discovers many disconnected molars. Still later, Art and Lloyd begin an eight hour engine rebuilding bit which enabled the car to return to the event for a time of 145.16, second fastest.



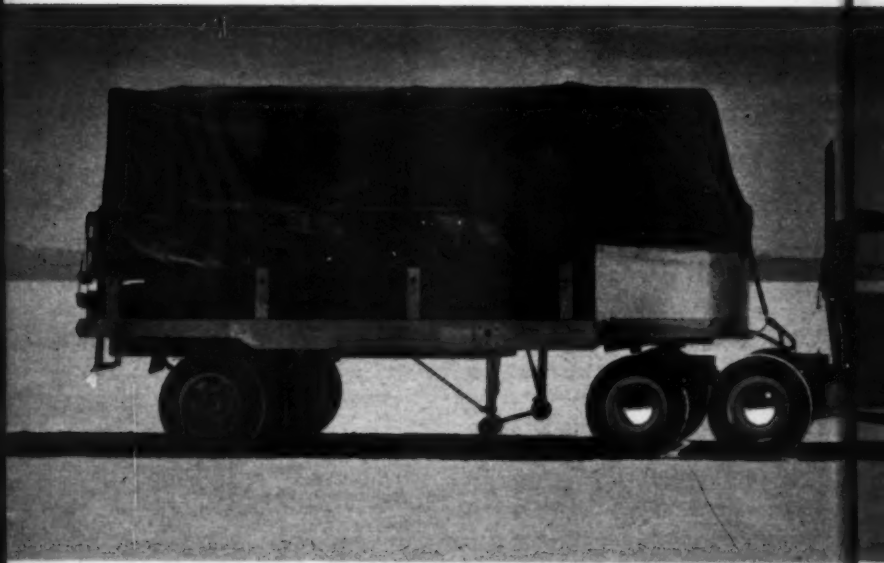
SUPPOSE you wanted to go to this year's Bonneville meet and had only a tired Model A roadster pickup. Furthermore, suppose you had eight (8) buddies who wanted to go with you — but none had a car and all wanted to pile into the A. How would you solve this dilemma? To see what Malcolm Whitt came up with, please turn the page . . .

Centipede-like Model A boasts 4 rear wheels, all driven through an unconventional driving system. Powerplant is a hopped up Ford V8 driving transmission with a floor shift lever. Car was built in 3 days.

9 MEN, 6 WHEELS and 3 DAYS

Problem: Transport 9 guys 600 miles in one Model A.
Result: A real hauling "A".

Photos by Spence



MALCOM WHITT, of Visalia, Calif., wanted to go to Bonneville—and so did 8 of his friends. None had a car that would make the journey, much less haul 9 guys and enough camping equipment for two weeks, but each had a wide assortment of new and used Ford parts. With three days remaining before the opening day of the speedfest, all pitched in to construct what turned out to be one of the oddest looking rods to ever put in an appearance at the salt flats.

Starting with a Model A frame, front half of an A pickup body, a floor-shift transmission with stock gears and a '47 rear end, the parts were hurriedly tossed into what appeared to onlookers to be a conventional street roadster. But when someone walked in with *another* rear end assembly, the hangers-on merely shook their heads and strolled away in search of some other form of sidewalk superintending.

After shortening the driveshaft enough to move the rear wheels some 14 inches forward, and adding a rear crossmember to align with the spring, a second crossmember was added to extensions welded to the rear frame horns. To this was joined the second rear end, with just enough clearance between the pairs of wheels to eliminate any possibility of rubbing.

(cont.)

Mildly hopped up flathead suffered breakdown midway on journey, was disassembled clear to the crank for rebuilding. Electrical system is 8 volt, 6-volt starter cranked like fury.

Front differential carries 2 ring gears, pinion shaft extends rearward to drive a conventional rear end. Rearends are '47's, both fitted with Model A springs. All tires are 6.00 x 16's.

6-wheel A drew as much attention at salt flats as some of the radically designed streamliners. High dual exhausts are to clear trailer of the gases. Crew slept in trailer for two weeks.

About this time someone took off in the direction of a trailer supplier while the remaining 8 buddies attempted to work out a satisfactory drive train for the 4 rear wheels. There appeared to be two possible methods for solving the dilemma – and as it turned out, the strangest way was the manner chosen.

It may be easily seen that if another pinion were mounted to engage with the ring gear but heading out the rear of the center section, the direction of rotation would be just the opposite from that required. To justify this, the ring gear in the second rear end could be reversed which would cause the 4 wheels to rotate in the same direction. In this case, though, a second ring gear was installed in the front differential and a pinion mounted to engage with it. Thus, the pinions of the forward rear end are not exactly aligned. However, this solved the problem for the moment and the second rear end was added by merely shortening a driveshaft and installing it between the pinion shafts with a U-joint to allow for flexibility between the pairs of rear axle assemblies.

As soon as the ninth member of the group returned from the trailer company with what is known to the hauling trade as a fifth wheel, the welding torch was broken out once again and the swivel-mount added approximately midway between the rear ends. This equalized weight carried on the rear wheels.

The engine compartment was filled with a 59A flathead which boasted the usual port and relieve job, a mild cam, Edelbrock heads and a 3-jug manifold. All six 16-inch wheels were fitted with 6.00's and the car hurriedly sprayed the brightest yellow that could be found on such short notice.

With what can now be termed a "tractor" being thus completed, someone managed to borrow a nearly-new all-aluminum 2500 lb. trailer which was immediately filled with 2 drums of gasoline, 30 gallons of something-or-other to drink, enough food and camping equipment for the nine diehards – and a road map spanning the area between Visalia and Wendover.

With a pilot and copilot at the helm, and with the remaining 7 members of the crew singing at the top of their lungs, the one-car caravan headed for the seventh annual speed meet in grand style.

We won't mention the complete engine overhaul which became necessary about midway on the trip, nor will we say anything about the time the transmission had to be replaced somewhere in the Nevada desert, nor the time 8 of the group had to push while the ninth valiantly ground the A up a particularly steep hill in low gear. Instead, we'll say that this bunch of spectators probably had more fun than anyone on the salt.

Yankee ingenuity at its best! ●

Cool and roomy, it's an . . .

Arizona Icebox

Photos by Spence

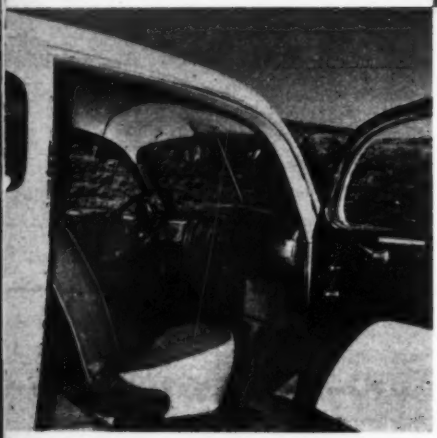
PARTIALLY THROUGH the efforts of R & C, Yuma, Arizona, has come to be recognized as the Dune Bug capital of the world. Travelers have been known to veer many miles off their course to journey through Yuma with the hopes of being treated to the sight of hordes of these short-coupled hybrids scurrying over the nearby sand hills. Actually, Yuma has much more to offer the auto enthusiast. Take, for instance, this neat '38 Ford 2-door built by Gary Dubach.

For reasons unknown to us, the sturdy little '38 is not often used as bait for either customizing or rodding. While it may lack the full appeal of the more popular '40, it does resemble its later counterpart when viewed from many angles. In fact, from the cowl rearward the '38 utilizes the same body shell as the models tagged with the '40 title.

Gary built his car over a long period of 4 years during which time his transportation was an everyday '50 Olds running a reworked engine. When the refrigerator white 2-door was at last completed, Gary cleverly removed the engine from the Olds, placed it in the '38, then outfitted the Olds with a second-hand engine scrounged from a wrecking yard. The Olds then went on the block and was sold forthwith.

All the modifications boasted by the Ford were performed by the owner with the exception of the upholstery and the paint job. The 20-year-old Gary had had no previous experience with body work, but since he has been working to be a welder by trade, and with several years of welding experience to his credit, it didn't take him long to get the hang of a hammer and dolly. *(cont.)*

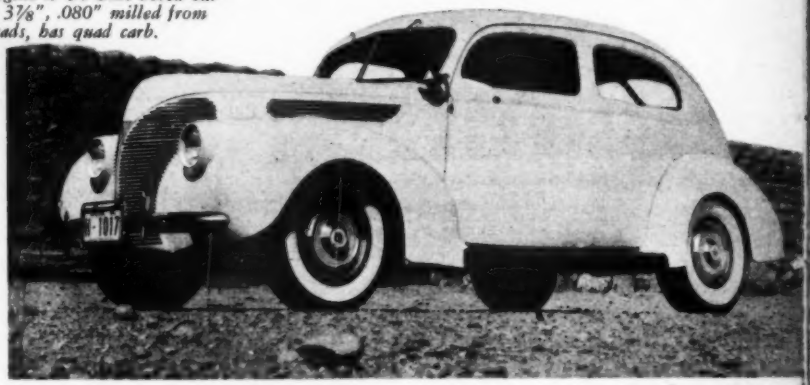
80 louvers, punched symmetrically into hood top, assist in venting engine compartment. Additional louvers in hood side panel serve to continue design line of the stock vents.



Interior boasts '40 dash, wheel and shift lever. Naugahyde upholstery is red and white with grey floormat. Expanse of white headliner has been broken up by the addition of red trim strips.

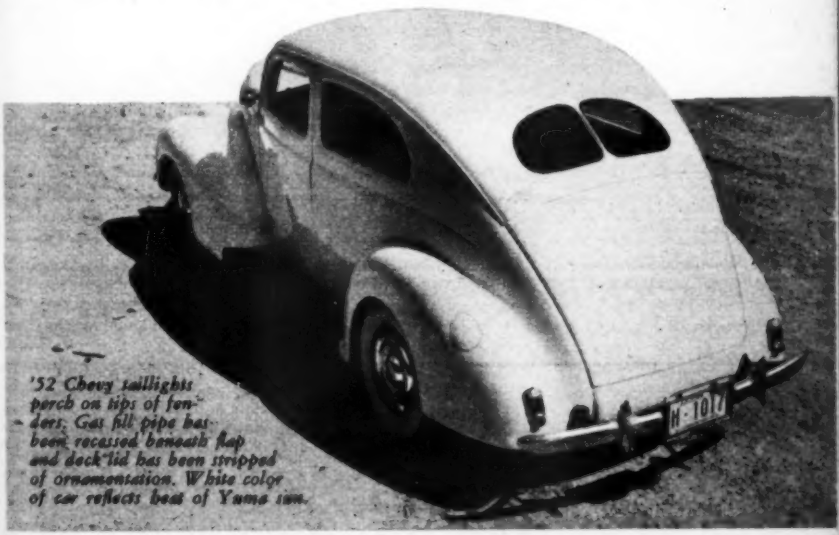
8.20 x 15 rear tires, with 6.40's up front, contribute to car's rake. Exhaust exits beneath running boards ahead of rear fenders; drag runs call for removal of plugs under front fenders.

The already uncluttered lines of the '38 Ford have been enhanced by removal of doorhandles and hood trim. Engine is '50 Olds bored out to 3⅞", .080" milled from heads, has quad carb.



The color white is known to have certain heat-reflecting qualities, so it didn't take much figuring when it came time to choose a color. Yuma, you may have heard, is one of the hottest places on earth.

Now that the 2-door has reached completion, Gary finds that spare time hangs heavy with him. At present, he is trying to decide whether to build a street roadster, a dragster, a Dune Bug or to customize one of Detroit's latest offerings. But rest assured that when whatever it is stands completed, it will bear the same mark of quality workmanship as does the Arizona Icebox. ●



'52 Chevy taillights perch on tips of fenders. Gas fill pipe has been recessed beneath flap and deck lid has been stripped of ornamentation. White color of car reflects heat of Yuma sun.

Exploring the versatility of a $14.95 welding machine.

SHOP REPORT

Photos by Spence

GLANCING THROUGH a number of past issues of R & C brought to light the fact that nearly 90% of the How-to-do-its covered require either welding or brazing during some phase of the operation. This applies not only to modifications or alterations performed by the home customizer but to engine enthusiasts and fans interested only in keeping their cars in top shape, as well. Because of this, a goodly share of our incoming mail requests information on how or where an inexpensive welder may be purchased, borrowed or rented. Naturally, it is not expected, for a simple hole-filling project, that the fan run out and plunk down anywhere from $100 to $300 for a welding setup which will only be used on occasion. Some cities have rental agencies where the necessary expensive equipment may be obtained at a certain fee per day, but this helps little the suburban dweller or the person who lives, say, 50 miles from the nearest blacksmith or metal shop.

Concerned with the problem of obtaining a welding unit for occasional use — but desiring to have one on hand at all times rather than having to rent a unit — we put ourselves in the position of the reader and leafed through the pages of ROD & CUSTOM checking advertisements in the hopes someone would have such a device for sale. And we found one — ordered the unit as any reader could — and sat back to wait for delivery. The price? Just $14.95 — a small enough investment for a complete outfit which would always be at hand for immediate use should the need arise.

A few days later the postman arrived with a box, the contents of which were destined to play an important role in the modifications currently being carried on to our truck.

The Four-Way Welder Co., of 1810 S. Federal Street, Chicago 16, Illinois, manufactures a compact, portable, universal welding machine which gets its name through its ability to weld, cut, braze and solder — each factor being a prerequisite for the builder intent on the construction of his own car be it a rod or a custom.

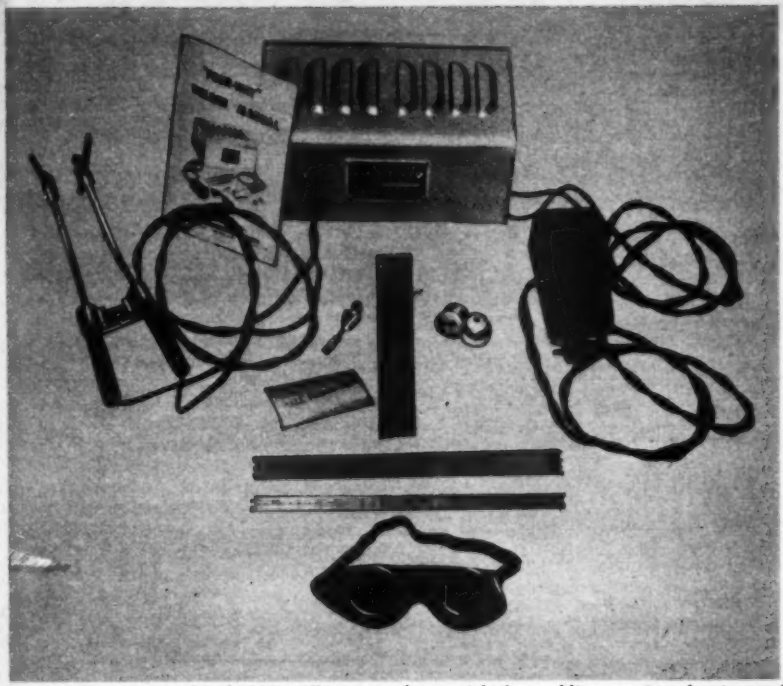
Concerned with the successful use of the welder without special instructions from our supplier, outside advice or the necessity of purchasing extra parts or material, we were determined to set the unit up and learn to work it satisfactorily using only the contents of the carton as received in the mail.

The best bet, when attempting to familiarize oneself with such a product, is to read then *reread* the instructions and to check carefully the parts list before attempting to unpack the components. In this manner, the item and its functions may be understood without having to resort to hit or miss guesswork which, in many cases, could lead to severe damage to the item and even to the operator.

Most important to the home enthusiast is the fact that one need not know the intricacies of either gas or arc welding before using the Four-Way Welder. It could be said that the unit operates through a combination of both methods so knowledge of either could almost be described as a detriment rather than an aid. This is a machine for the novice who, through practice, can become as adept at welding, cutting, brazing and soldering as a professional using much more expensive equipment.

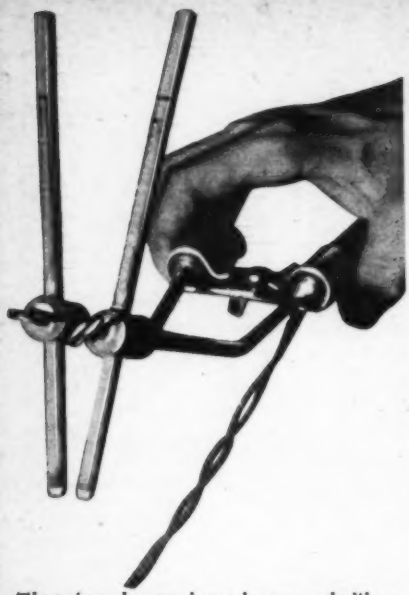
The delivered box contains all the necessary parts and the materials for long use of the machine. Included are the welding unit itself,

(cont.)



Here's what you get for $14.95. All parts and materials for welding, cutting, brazing and soldering accompany the purchase. As delivered, the unit is all set to plug in ready for work.

A foot switch, placed on the floor, interrupts flow of current between wall outlet and welder. When pressed, the switch allows electricity to reach the machine thus it is ready to be used.



The twin carbon torch attachment works like a pair of pliers. Squeeze the handles and the carbons separate. Arc is started by touching carbons, separating them by ¼" creates flame.

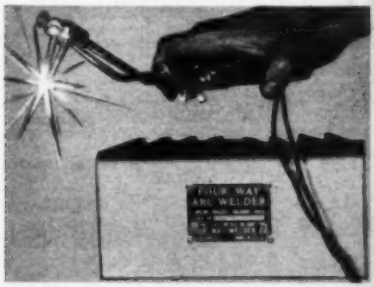
Closeup of holder bushing. Carbons are affixed by passing through large hole, tightening the set screw. Smaller welding rod is placed in small hole. Holders may be used as a pair or singly depending upon the type of work to be performed. Metal up to ¼" thick can be welded.

input cable and plug, combination twin carbon and single metallic arc welding electrode holder, welding and ground cables, on/off foot switch, assorted welding and brazing rods, goggles, flux, carbons, fuses, ground clamp and operating and welding instructions. An impressive list, to be sure. An accompanying photograph shows a layout of the parts and materials as they were unpacked from the carton. Close inspection of the components revealed the manufacturer's use of quality materials and care of design and assembly. In short, nothing was lacking in the way of workmanship as is often the case when dealing with a product whose price seems extremely low in comparison to similar products.

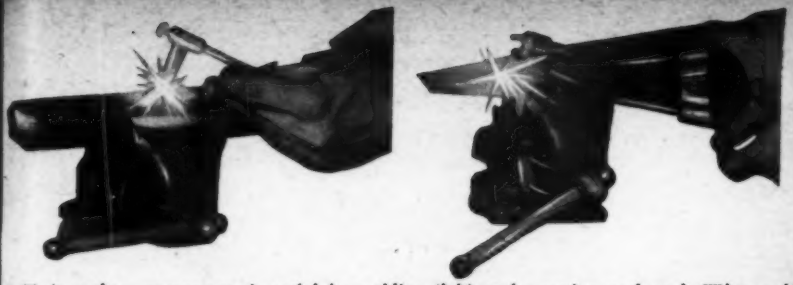
There is little setting up required before the welder can be put to use. In fact, by merely familiarizing ourselves with the parts, then plugging the unit into a wall socket, we were all set to start operations. It's that simple.

First, though, a few words on the electrical supply system needed before the machine can be put into operation. The welder will operate from any properly wired 110 to 120 volt, A C or D C single phase line. (Used almost universally throughout the U. S. for house wiring, however it would be a good idea for suburbanites to check with their local power company.) The branch or circuit line from which the welder is to be operated should be at least #10 wire protected with a 30-amp fuse. (Two such fuses accompany each welder.)

Briefly mentioned earlier is the combination arc/gas type of welding possible. Actually, what happens here is that an arc-flame is handled as though it were a gas flame. This is how it works: Two carbons are pushed through holes in the bushings at the ends of the holder, and are retained by set screws.



An arc is produced by pressing foot switch, moving carbons apart slightly. Flame reaches 11,000°, enough for all types of torch work. Unit handy where heat is needed occasionally.



Twin carbon arrangement is useful for welding (left) or for cutting steel stock. When welding, flame is played like that of gas welder while welding rod is fed in by opposite hand.

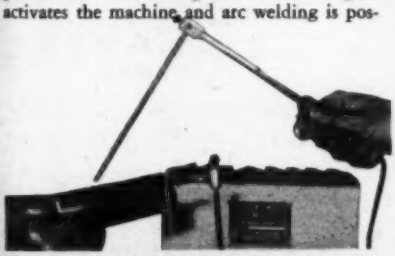
Like the action of a pair of pliers, squeezing the handles will move the carbons apart, just the opposite will move them toward each other. Plugged into the wall outlet, the welder is ready to use and a push of the foot on the floor-positioned switch will activate the welder. The carbons are brought together and an arc occurs, move the carbons apart about ¼-inch and the arc increases in intensity. Thus, a 11,000° flame is obtained and you're ready to weld, cut, heat, braze, solder or whatever the job at hand requires.

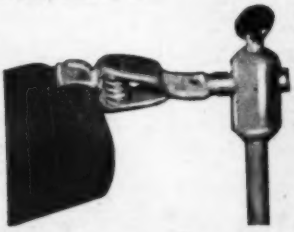
The instructions included with the unit warn emphatically that the welding unit not be touched during, or immediately after, use of the machine since it heats up considerably. Too, the wires and connections should not be handled nor should the operator stand on a wet surface when using the welder.

Ordinary arc welding is also possible with the Four-Way Welder. Removal of the pivot screw between the handles of the twin carbon torch attachment will result in two single holders. The provided ground clamp is placed in the bushing of one holder, the other fitted with a length of arc welding rod which accompanies the unit. Pressing the foot switch again activates the machine and arc welding is possible. In this manner, metallic arc welding, brazing, soldering and cutting may be carried out. With one of the carbons inserted into a single holder, and the other grounding the work to the machine, the resulting arc, when the carbon is placed within ¼-inch of the work, is sufficient to allow cutting of sheet steel, plate or similar material.

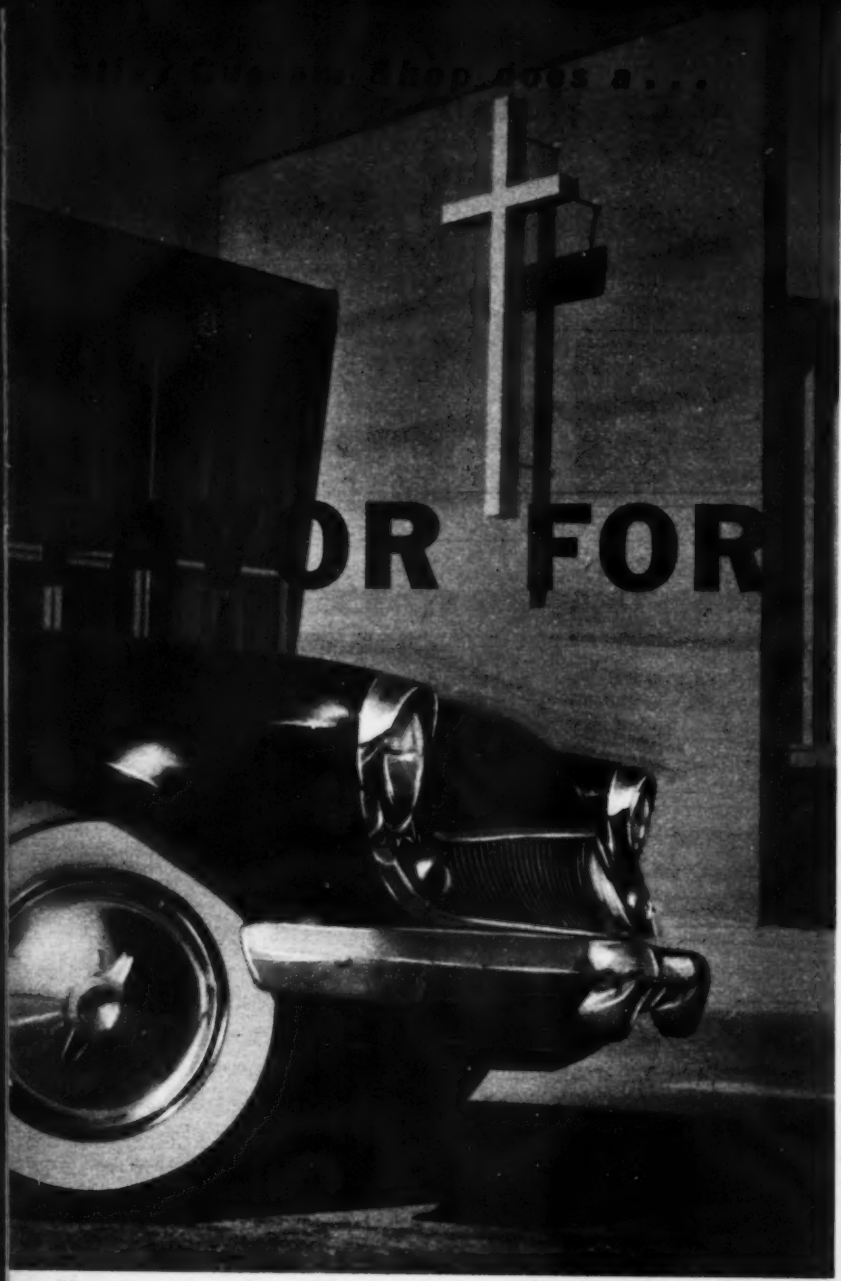
Rather than delve into the various methods of welding, brazing, etc., possible with the Four-Way Welder – since the accompanying booklet thoroughly describes each and every operation with unusual clarity – suffice it to say we were extremely happy with the versatility of the inexpensive machine. Incidentally, the company also makes available additional supplies of rod, flux, gloves, masks, and so forth, though as it is delivered the machine is complete and ready for work.

Being capable of permanently uniting all types of ferrous and non-ferrous materials up to 3/16 and even ¼-inch in thickness, it is conceivable that a large share of the necessary welding needed for the construction of, say, a home-built rod or custom car can be provided by this machine. And for just $14.95 – well, you just can't beat it. ●





Ordinary arc welding calls for separation of two holders of the twin carbon attachment. Ground clamp is affixed to work, thus it is grounded to the machine, while rod is placed in other holder and used like any arc welder. All types of ferrous and non-ferrous metals may be gas-type or arc-type welded with this machine. As it comes, unit is ready for use.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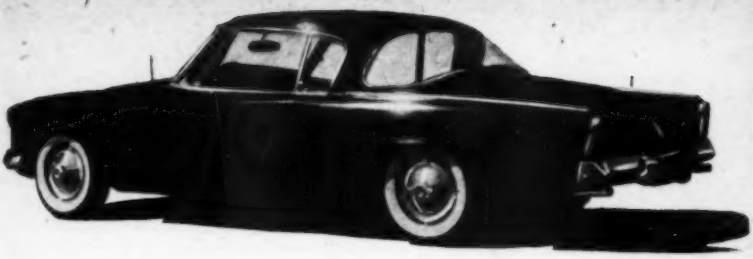


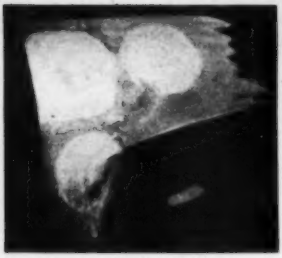
A FRIEND

fotorale by lynn wineland

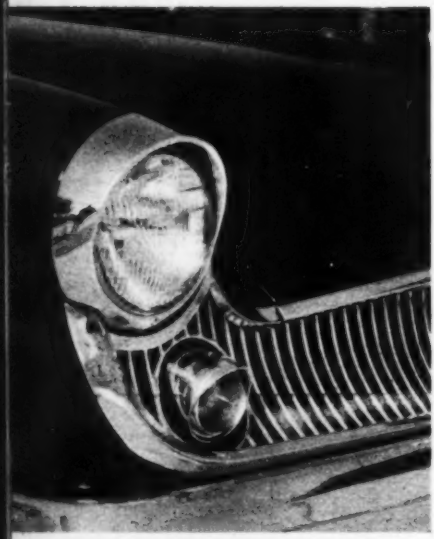
AS MIGHT be expected, custom car shops are usually well stocked with friends of the owners and workers who drop by to "worketh a deal" whereby their 1923 Whippet four door sedan is to be converted into an Americanized Ferrari Mondial complete with Tee-Vee and snack bar. All this with a "for a friend" sized price tag, yet! The prospect of stylizing the sow's ear without being about to withdraw the silken purse will quickly chill many a warm friendship. In sharp contrast to this is the frustrating experience of the body man's buddy who drops by with one of the new low-hung high-powers that sets the customizer's hands itching only to find that ol' pal likes it the way it is.

Ray Charbonneau and Neil Emory, of Valley Custom, have been coffee-drinking and doughnut-dunking buddies for years, and when Ray showed up in a '53 Stude hardtop, Neil began to lick his lips in anticipation. All this to no avail, 'cause Charbonneau wasn't having any, despite the arm twisting.

(cont.)


Elimination of doorhandles meant use of electrically operated latches. After removal of the outer handles, holes were filled by welding in metal patch, grinding area smooth. Tinsnips ...



Strange are the ways of fate, and months later the front of the Stude-banger got a clobbering. Valley Custom jumped to the fore and Ray, with resistance weakened, gave the go-ahead for Neil to rework the damaged area with free rein to change it as he wished. The stylists quickly went to work on paper and with chalk on the floor, finally evolving the present design.

Damaged areas of the Studie's beak were cut away and the grillework removed. A new latch mechanism was built for the hood and braces provided for support. Quarter-inch steel rods were formed around a jig to assure constant arch and cut to appropriate lengths. The bars were tacked in place equi-distant from each other along a rod framework suspended in the perimeter of the grille opening.

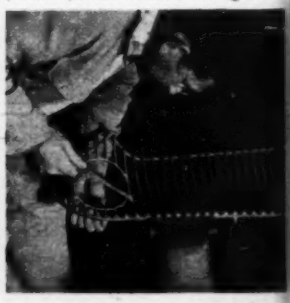
As the work progressed, Ray's enthusiasm mounted and he displayed his own talents, doing much of the fitting and alignment himself.

Rings of the ¼" rod were made, then bent to match the concavity of the fitted bars.

(continued on page 65)

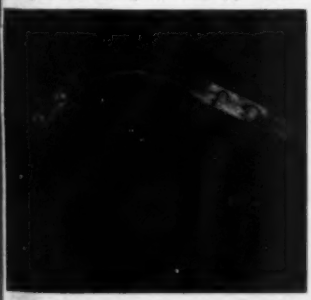
Restyling the grille integrally with lights meant headlamp removal. Here outline of new opening is contoured with steel rod. Gaps were filled with metal, lower fender contour changed.





. . . cut hole for pushbutton made from Ford glove compartment lock — available from Valley Custom. Chrome hides button, but the tip is accessible through trim. Presto — door opens.

Lower frame, built from stock, is retained by clamps on back side. Owner Charbonneau smooths grille made of ¼" and ⅜" rod. Grille and the frame were then chromed before final assembly.



By Peter Millar

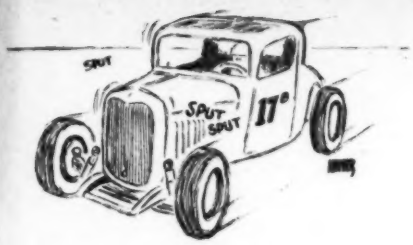
This month we find our friend Arin confronted with a foul running engine. Just before he pulled it apart to determine the cause, someone warned him that it may not be the engine's fault. Forewarned is forearmed, they say, so Arin herewith gives us a few hints on plugs.

If the porcelain around the electrodes is a chocolate brown, then you know you're pretty close to the correct mixture.

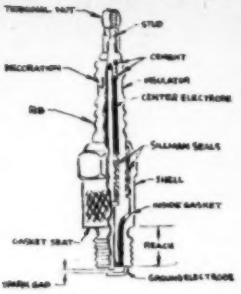
If the electrodes are running off and you've splattered metal on the side of the plug, then you can assume you're using too hot a plug. Try a colder range.

Oil on a plug could mean a number of things. It might mean a broken ring, a broken piston or the skirt may be broken. More'n likely, though, you'll find that your rings aren't holding oil — however, the plug could be too cold and not firing properly.

If the plug is wet with unburned fuel, then it's too cold — try the next hotter range.



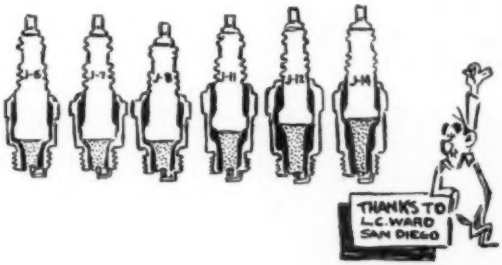
If you're not satisfied with the running condition of your machine, it might be a good idea to take a look at the plugs before you tear the mill apart. Surprisingly enough, they can tell quite a story.



Here's a cutaway sketch of a plug, illustrating the hidden parts, as well as the names of the various outer sections.

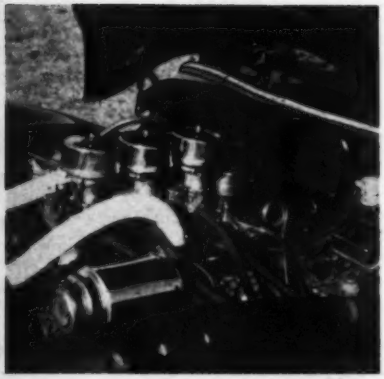
A chalky white porcelain or one pitted with black dots means your mixture is too lean. You can fix this by going bigger on the fuel jets to pass more fuel through and cut down the air.

But, if your mixture is too rich, the plugs will be sooty black — but don't confuse this condition with a plug that has been blackened by oil. You can tell the difference by rubbing the plug on your hand. If it leaves a black smudge, you know the mixture's too rich.



A simple way to recognize the varieties of plugs available is to notice the porcelain length. The longer the porcelain, the hotter the plug.

WASHINGTON



FIRST STOP for "48" this month is the State of Washington where we've come across just about the lowest thing on wheels this side of Bonneville. This 4'2" Ford of 1940 vintage illustrates the workmanship of Paul McGill who hails from Aberdeen.

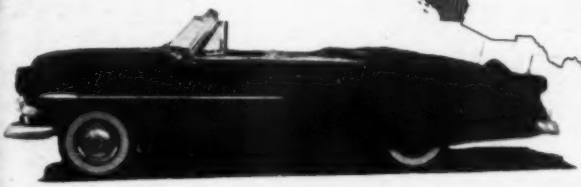
Overall height of the metallic blue convertible was achieved by installing a dropped axle up front and by straightening the rear crossmember to drop the aft end of the chassis a full 4 inches. The body was then channeled 6½ inches over the already lowered frame. Topping off the height reducing procedure was the removal of 5 inches of material from the windshield posts. Though the resulting ground clearance is but 4½ inches, riding qualities have apparently not been hampered.

To compensate for the severe channel job, the rear fenders were raised on the body as far as possible. Lower edges of the fenders were trimmed off to even them with the lower edge of the body. The front fenders remain in their stock relative position but, once again, the lower edges were trimmed away. Thus, the hood had to be sectioned the same as the measurement of the channel job.

Taillights of the Aberdeen custom are Pontiac, rear bumper is '50 Plymouth, front bumper is from a '46 Ford. All exterior ornamentation, with the exception of the doorhandles — oddly enough — has been discarded and the holes filled, the seams molded. Headlights are frenched — a difficult job on a '40 — and the distances between the body and bumpers have been spanned with special gravel deflectors.

Inner design was left up to Holcomb of Aberdeen who skilfully executed a combination of blue and white Fabrilite to match the car's interior with that of its fabulous exterior. ●

CONNECTICUT



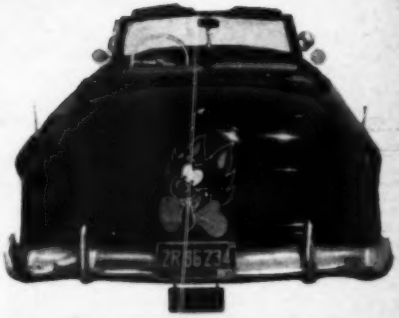
THOUGH ALL of the work on this '53 Ford convertible was performed in California, we're giving Connecticut the credit since car owner Fred Evaristo came out to this far western State for the express purpose of having the modifications performed! Though he is living temporarily in Van Nuys — and though the custom carries Calif. plates — Fred still calls Stamford his home and will probably have returned there by the time this sees print.

Modifications started at C & T Automotive where the engine was the first part of the car to undergo a change. Bore and stroke are now 3 5/16 x 4 1/8 respectively. Of course, the usual porting and relieve jobs were carried out, dual carburetion added and all the accessories within reach went to the platers for chroming.

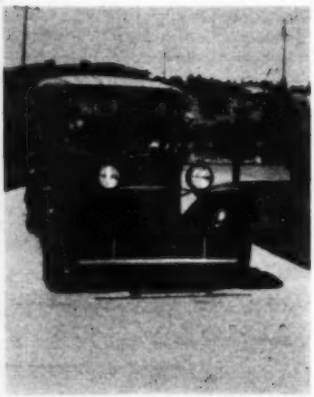
For the exterior, Ralph's Body Shop was selected to louver the hood, remove the outer handles and install electric latches, french the headlights and fill the exposed holes.

Liking the Continental type of spare, but not wanting it to appear as though it were added to the car as an afterthought, Fred saw to it that the fenders were extended rearward to "frame" the exposed wheel. Lengthening amounted to 6½ inches accomplished by torching off the back half of each fender, adding pieces of sheet metal to make up the length requirement, then rewelding the tips of the units back in place.

Dummy airscoops were cut into the rear fenders just ahead of each wheel. As a final and fitting touch — and with the thought in mind to outdo, once and for all, advocates of the current striping craze — Fred had his club emblem painted on the spare cover — with eyes that light as the brakes are applied!! ●



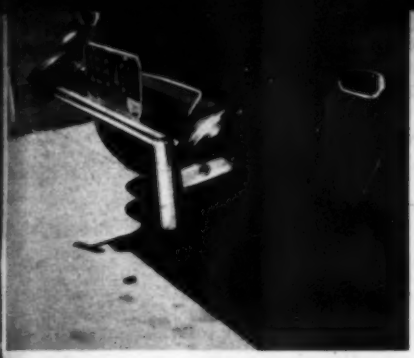
Reader's CAR OF THE MONTH



TO THOSE readers who may feel that the Mercedeuce (page 11) is too much, consider this nifty little 2-door owned by Bill Burnham who calls Oakland, Calif., his home though he formerly lived in Peoria, Illinois.

Even though Peoria was not noted for its great selection of street machines, Bill, by the time he was old enough to raise a Mexican speed wrench (hammer – Ed), knew that someday he had to have himself an eyestopper. After a stretch in the Navy, during which time he visited California and managed to come out on the short end of several "car deals", he unearthed this sedan and had it *dragged* into his yard.

"Oh, no, not again!" Enter the wife. However, once Bill convinced her that an outlay of only $34.00 had purchased what there was of the Deuce, she was satisfied that the economic loss was worth it. Fast talkers, these hot rodders!



The newly delivered Deuce had little to offer. The fenders were smashed, the seats were gone and there was a gigantic dent where the spare tire used to sit. However, as Bill says, after it was bent back to shape, things began looking up. A new interior of light blue was installed and a Naugahyde cover made to cover the center portion of the top. To match the interior, the entire undercarriage of the Deuce was painted blue with all exposed suspension parts being chrome plated.

The 2-door, as it sits today, features the hydraulic brakes from a '41 Ford, a 2¾" dropped axle, 4.11 rear end gears and 5.50 front rubber with 7.00's aft.

The engine is a 248 inch Ford with H & C cam, 9 to 1 Offenhauser heads and a Weiand dual intake manifold.

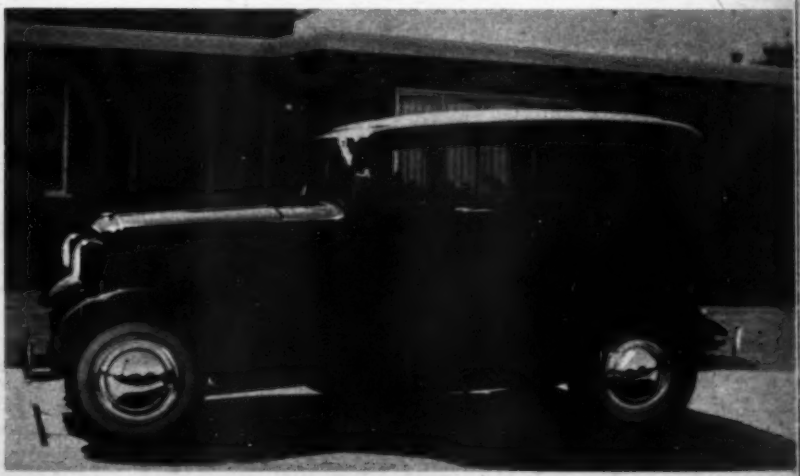
Particularly outstanding are the Deuce's handmade bumpers, solid hood panels and the Fiberglass-lined engine compartment to cut noise to a minimum.

As a final touch, Bill had Oakland's striper Tommy the Greek run a thin, blue line around the 2-door's belt molding just beneath the windows.

Though Bill claims he is real modest, he relates a drag strip time of 90 mph which he says is not really too good. Sounds good to us!

More rewarding were the trophies which the street sedan brought home from the National Roadster Show, held each year in Oakland.

Long live Henry's 1932 model! ●



East challenges West for an all-out superiority contest

DUNE BUGS FROM THE *East*

CONFRONTED WITH 1800 acres of deep sand, some of it piled as high as 300 feet, the hot rodders of Northern Michigan were quick to discover that cars could be built to traverse these dunes. By placing as much weight aft as possible, experimentation revealed, and by using extra-wide tires deflated to 12 lbs. pressure, the lightweight cars would roll easily over a surface that had previously been an obstacle automotive-wise.

Reader Carl Brandel, responsible for the cars shown here, writes that the dunes were first tackled by an automobile built especially for the purpose some 16 years ago. Due to the popularity of dune-riding, it wasn't long before several advocates of the unusual constructed cars and at this time as many as 25 have been built. So confident are the Michigan dune riders, that they have challenged their counterparts in Yuma, Arizona (R & C for October '54 and August '55), to a contest on the sandhills of Southeastern California in the near future. And this we won't want to miss. ●

Legally registered as a "Flying Saucer, Dune Bug", Carl Brandel's car features rear engine drive, two seats up front for roller coaster effect while negotiating steep sided dunes.

Underinflated, over-sized tires prevent car's sinking in sand. Unlike dunes of Southeastern Calif., Michigan sand hills are bordered by water. Looks like slip could mean a dunking...

Dune scooter, engineless and featuring two in a row seating, is towed to top of steep dune, allowed to roll to the bottom. Tricky coaster usually spills riders before reaching base.

...but driver and passenger manage to keep feet dry. Dunes occupy 1800 acres, are located some 40 miles up coast from Muskegon. Anxious spectators are charged 25¢ for a wild ride.

MORE LETTERS

(continued)

BUILDING A HARDTOP

I'd like to make a hardtop out of my '49 Chevrolet convertible. If this is possible, what turret top would require the least work for proper installation?

Robert Eppler — Dayton, Ohio

• *Either Chevrolet or Pontiac hardtop turret tops through 1952 will work, but be prepared for more work than you probably anticipate.*

WINDSHIELD QUERY

I'm interested in making a "sports rod" out of a Hillman Minx chassis. I'd like to have a wraparound windshield on the plastic body but haven't yet found one that will come near to fitting. Can you help?

Mel Melton — Ellerson, Virginia

• *Plexiglass is your best bet, Mel. A wooden form must be made to the contour you desire for your windshield, then a sheet of Plexiglass heated and molded around the form. Past issues of R & C have carried stories on shaping plastic.*

(cont. page 62)

"POOR SAM, HIS WIFE WOULDN'T LET HIM GO TO BONNEVILLE THIS YEAR!"

CAMPBELL AND THE BLUEBIRD

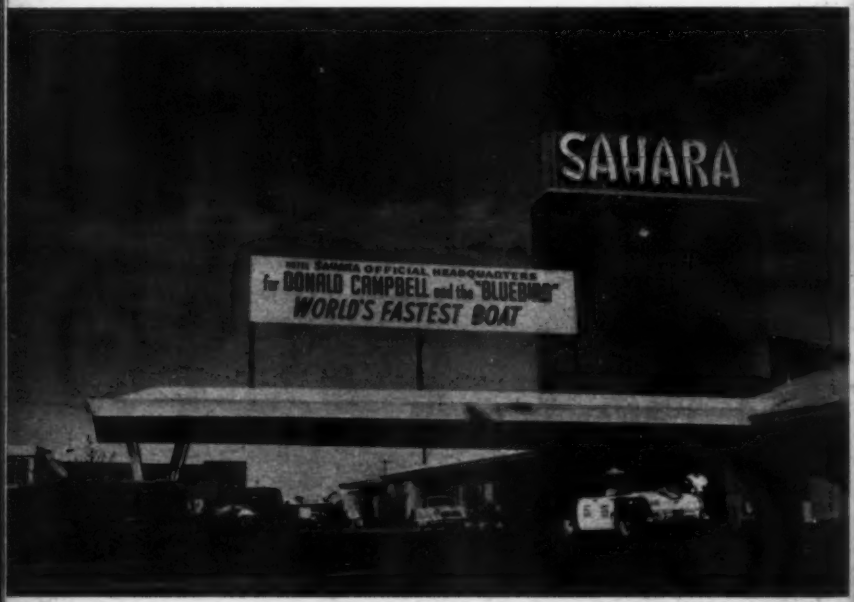
Water speed record attempt ends in sinking, but the recovered boat may yet top 202 mph.

THE MIDDLE of October marked Donald Campbell's first attempt to better his own water speed record which had been set in England last July. With the mark presently standing at 202.34 mph, Campbell had hoped to raise this by more than the 1% increase needed to make the run official. Due to an unprecedented series of mishaps which delayed necessary tests on the boat, Campbell knew that his attempt on the 16th would probably not surpass the mark. However (and due to the request of television officials who were trying to record the run "live" at a predetermined hour), Campbell took to Lake Mead with all the 4,000 lbs. thrust of his jet engine pushing him. His first run past J. Otto Crocker's clocks netted a speed of slightly over 147 mph. As per regulations, the return run would have to be made within an hour though Campbell himself said a trial was ridiculous in view of the relative slow speed of his first leg. To the joy of the press and newsreel men (to say nothing of the television crews) Campbell cranked back down the lake for a speed of 162—truly an impressive sight what with the gigantic roostertail flowing out behind accompanied by the banshee-like wail of the powerplant.

Crocker fixed the mean speed at 155 mph, far short of the goal but fast enough to satisfy all of those present who had never before witnessed such a spectacle.

Then, as all the newsmen and officials rushed back to Las Vegas' plush Sahara Hotel (responsible for bringing the trial run to Lake Mead), the world's fastest boat sank ignominiously in 30 feet of water.

Undaunted, Campbell promised he would not leave the country until his record had been surpassed—and if he doesn't hurry, per-

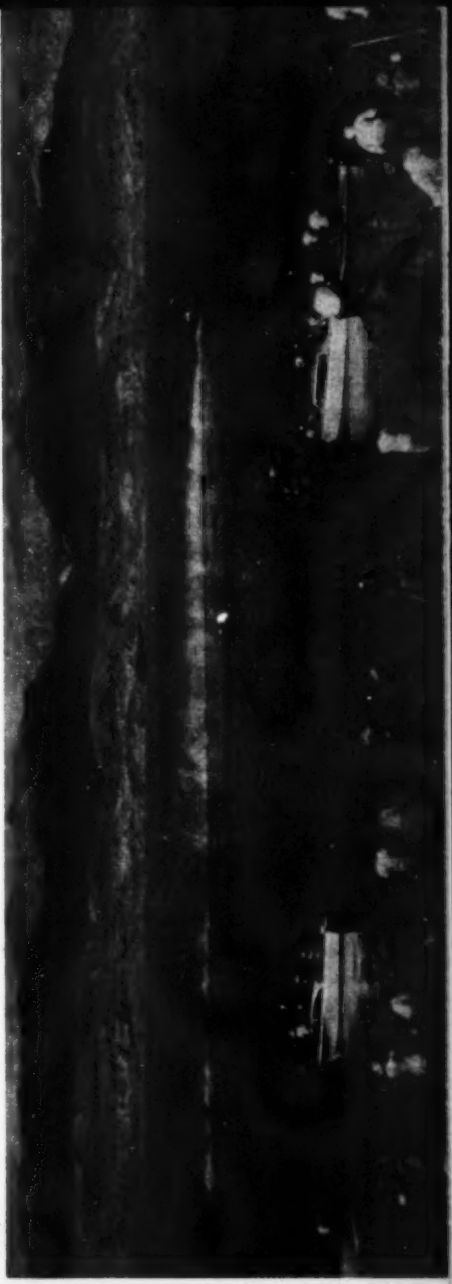


Photos by Spence

haps someone else will do it for him. However, by the time this reaches print he will again have made a try.

The point is this. Though the thrust of his jet engine was not pushed to its maximum during the record run at England's Lake Ullswater, the "Bluebird II" nonetheless took the then present mark away from Slo-Mo by some 25 mph. Were someone to apply this method of propulsion to a car, chances are the present Land Speed Record would similarly fall. Time alone will tell the outcome and effect on speed enthusiasts of the jet propelled craft, and though propeller-driven boat fans are looking askance at the unorthodox craft, most feel that the screw will never again hold any straightaway boat records. Spectator-musician Guy Lombardo took valuable air time to describe plans for his own jet boat.

Who'll be first with a record jet car? ●



Host to "Bluebird II", Campbell and his 6-man crew, was the plush Las Vegas hotel, the Sahara. Undaunted by the misfortunes which beset him, Campbell promised to stay right here until his present record had been bettered on Lake Mead. If this is done, chances are the title "Fastest Boat in the World" will not return to a propeller-driven craft since technicians think more than 200 mph on water is impossible with a craft powered through conventional methods.

The world's fastest boat at speed throws an impressive tail of water behind it as it tries to better its own record of 202.34 mph. First leg of the attempt, though, was but 147 since Campbell did not wish to push the Bluebird II to its limit over the rough waters of Lake Mead. Later, while being towed to its mooring site, the $71,000 boat sank, was recovered 8 hours later.

STILL MORE LETTERS

(continued)

WORDS FROM AFRICA . . .

You will, no doubt, be surprised to receive a letter from as far away as South Africa. I know that I'm not only speaking for myself but for a good many other enthusiasts in this part of the world.

Since last year I've been able to buy R & C here and sometimes have made a 35-mile trip to Johannesburg to make sure I don't miss an issue.

At present I'm customizing a '51 Pontiac and have added fishtails to the rear fenders, lowered the car 4 inches, altered the grille and given it a good lacquer paint job.

Both customizing and hot rodding have picked up in this country like wildfire but the fellows realize that the Americans are the only people to set us on the right track. I'd like very much to correspond with a reader from your country who is interested in customizing.

Keep up your good work, I know R & C has the interest of many fans who see cars in the same light that I do.

J. Marnewick 65 Kruger Avenue, Uereeniging, Transvaal, Union of South Africa

. . . AND ALASKA

Just saw a letter in your April '55 issue by another girl. It seems that few of us are interested in hot rodding, but at least *some* are!

I've been a steady reader of yours for over a year. I don't have a car of my own yet, but hope to in the near future. In the meantime I content myself by drawing pictures of customs.

Here's hoping girl hot rodders keep increasing.

Peggy Snow Juneau, Alaska

HOOD SPRINGS

Since I had the hood of my car insulated to keep engine noise at a minimum I've had trouble keeping the hood up. The excess weight is too much, I guess, for the springs. Are there any other springs available that I can use to solve this?

Keylon Jackson El Dorado, Arkansas

• *Sorry, but we're certain that no other springs will fit. Suggestion: Either shorten your springs about an inch or add a bracket to the lower mounting plate which will allow you to fasten the spring further from its stock position.*

FIRE FOR FIREDOME *(cont.)*

respectable figure for the size of the engine involved and it is not out of line to expect that similar power-figures could be shown by the engine discussed above.

All this pressure is delivered to a stock Dodge truck flywheel which will fit the DeSoto crank flange without alteration. This is equipped with a 10-inch Friction Master clutch delivering 2600 pounds pressure to a hot-bonded disc. This particular clutch is equipped with a steel ring around the cast iron plate to prevent it from flying apart under the rugged stress of dragging, an event that could have disastrous and possibly fatal consequences. Since the engine is slated for a much modified Ford coupe it was equipped with one of Ray's adaptor plates as shown in the accompanying illustrations.

Admittedly the above engine has its limitations since it is an alcohol burner and is designed for competition only. With only minor deviations from the outlined procedure, however, it could have been a red hot street machine fully capable of digesting a diet of pump gas.

In this case, the overbore and block treatment would be essentially the same with a few minor (and less costly) exceptions. First, instead of the special pistons a set of '55 stock DeSoto buckets could be used. Instead of using the low lift cam, another Herbert cam with a slower valve lift rate and a higher lift but with the same duration could be substituted. The bore increase alone would be sufficient for a 7.5 to 1 compression ratio and by milling .080 of an inch CR would be in the neighborhood of 8.5 to 1, more than sufficient for street use. If one wanted to get really fearless a Weiand four carburetor manifold could be used instead of the reworked three jugger. For normal street use, however, the two carburetor set-up or a single quad-throat unit would pack plenty of steam for the purpose. If the four carburetor manifold is used it is recommended that the standard accelerator pump jets be swapped for the #71 pump jets designed for the Ford Sixty.

The gas class machine can't be expected to put out the horsepower of the alky or nitro burner but it should pump approximately 240 to 250 bhp at about 5200 to 5400 rpm, Ray feels.

Remember when 240 horsepower on fuel was considered fantastic? Progress is progress and this is just the beginning — it took 20 years to develop the flathead! ●

STATEMENT REQUIRED BY THE ACT OF AUGUST 24, 1912, AS AMENDED BY THE ACTS OF MARCH 3, 1933, AND JULY 2, 1946 (Title 39, United States Code, Section 233) SHOWING THE OWNERSHIP, MANAGEMENT AND CIRCULATION OF

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1. The names and addresses of the publisher, editor, and business manager are:

Publisher — R. E. Petersen, 5959 Hollywood Blvd., Los Angeles 28, Calif.

Editor — Spencer Murray, 5959 Hollywood Blvd., Los Angeles 28, Calif.

Business Manager — T. A. Johnson, 5959 Hollywood Blvd., Los Angeles 28, Calif.

2. The owner is: (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding 1 percent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a partnership or other unincorporated firm, its name and address, as well as that of each individual member, must be given.)

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5. The average number of copies of each issue of this publication sold or distributed, through the mails or otherwise, to paid subscribers during the 12 months preceding the date shown above was: (This information is required from daily, weekly, semi-weekly, and triweekly newspapers only.)

T. A. Johnson

Sworn to and subscribed before me this 22nd day of September, 1955. Marion Kappler

Notary Public in and for the County of Los Angeles, State of California. (Commission expires May 19, 1956.)

FAVOR FOR A FRIEND *(cont.)*

The rings were tacked lightly into position in the radius formed where the scoop sweeps up into the headlights. Once correct alignment and position were assured, short sections of grille rod were welded in for support. Much hand filing was necessary at this point for flawless appearance.

The flared fender that shades out over the front bumper corners was cut away and flat strips of metal inserted to join the upper fender smoothly to the lower scoop. Conforming to the scoop side of this new form, an edging was carefully made to cover the places where the vertical grille bars were welded to the framework. Another edging fits the lower edge of the hood front. Tying the two together beneath the headlights are two jewelry-perfect sections made of rod with sheet metal covering. Chevrolet parking lights were slipped into tubes which were cut at an angle and form a shade complimentary to the headlight covers. Tabs at the rear of the tubing allow it to be bolted to the inner fender structure and protrude through the grille rings.

Under pressure from Neil and others of the Valley Custom gang, Ray began to consider other modifications, resulting in the rounding of the hood's rear corners as well as those at the front of the decklid. Door handles and locks, trunk hardware and all emblems were banished and the holes plugged and smoothed. Electric latches were tucked into the doors and under the trunk cover. Ray worked on the rigging of cables and wiring, and constructed a pair of lockable door buttons from Ford glove compartment catches. For location of the door openers, the chrome molding below the quarter windows was removed and a hole snipped to accommodate the switch. Care was important to avoid contact with the window mechanism. A hole in the molding allows just the tip of the button to protrude unobtrusively.

The work completed and matchless black lacquer paint applied to the body, Ray relates many humorous incidents which occurred. Several know-it-alls explain to companions, "Yep! That's the new model . . . Read about it in the magazines!" To those who do recognize that the grillework is special, Ray offers small satisfaction. After a query as to where he could buy one just like it, another Studebaker owner accepted Ray's stock answer and rushed off to the nearest accessory store with $12.95 in his hot little hands.

Despite the intricacy of the many pieces involved in the new bug catcher, it maintains an ageless purity of line and form, defying the current trend toward massive components. The appearance of the car is so vastly improved that there can be no doubt that when Valley Custom does a favor for a friend, it's also a favor for his car. ●

CHRISTY'S CORNER

NO MATTER how much rake you give that coupe it still won't be going downhill. It seems to be a current fad, particularly among the drive-in set, to see how closely a car can be made to resemble Farmer Brown's tractor. The end result is that it (the car) goes just about as fast and uses just about as much gas (as the tractor).

'Couple of years ago it was just the other way 'round. The top dog at the local drive-in (you name the locality) was the guy who had his hip pockets closest to the ground. If he could scrape his tailpipes on a match stick he was in but solid. If you didn't have a set of six-inch shackles or four-inch blocks — well, that was all, brother.

On Sundays all hands gathered at the drag strip apparently to see how many times a rear spring would wrap around an axle. We say apparently because it was obvious that speed wasn't the objective. 'Guy would pull up to the line and wait for the flag to drop ... Flag would drop, foot would go through the firewall. Car just sat while the axle wound up the rear springs like an eight day clock. About the time it would take for Landy to get into the trap the car would charge off the line scraping everything off up to the trunk latch. Elapsed time, about a minute and twenty seconds.

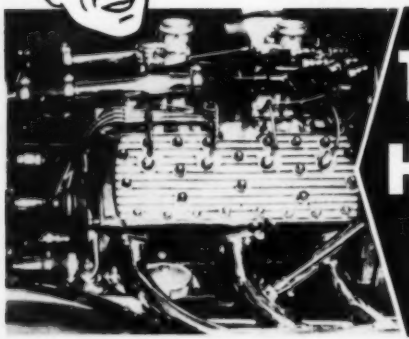
Now it's different. Our boy has traded off his tail-dragger for a coupe. Now he comes into the drive-in with the seat of his pants six feet in the air and casters under the bottom tank of the radiator to keep it off the ground — well, almost. And they still can't get off the dime.

The point being driven at here is that extremes of anything just won't get the job done. The original idea of using larger tires on the back end of a car was to get enough rubber on the ground to keep from breaking traction — just so much and no more. The more horsepower developed the more the traction needed. But, it can be carried too far. A tire is a weighty item and it takes a certain amount of beans to turn it. The heavier it is the more it takes. A careful study of the uses of rubber on race cars will point up the clue: use the smallest tire you can possibly get away with and still maintain traction. It's much the same idea as shaving a flywheel. One uses an 18-lb. flywheel to cut down drag on the driveline. There's not much sense in cutting a flywheel and then just adding twice as much weight a few feet further aft.

Another point is the change in effective gear ratio. Depending on whether you want top speed or acceleration you'll want to gear slightly above or slightly below normal "all-purpose" gearing. Gearing "up" is the principle behind overdrives but it can be carried too far as Chevrolet has found out. Without a complete Corvette kit the OD equipped Chev will *not even peak out!* The stock engine just doesn't pack enough suds to pull the gear. The same thing goes for tire sizes. A huge back tire can actually raise effective gear ratio as much as a switch to the next higher available gear set. Now you see why Nose-Down Charlie doesn't get anywhere at the drags. He's raised his gearing so high that he can't get off the dime and he's compounded this error by adding a tremendous amount of rotating weight. Then he wonders why the kid in the stocker leaves him at the light every time.

All this is by way of pointing out that these modifications have a definite place but only if used in some moderation. All the extremes will get you is laughs. ●

IF YOU "EAT, SLEEP AND LIVE" CARS...



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